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LICENSE CHANGES ANGER MANAGERS

Some feel pressured by Microsoft to upgrade

BY CAROL SLIWA

Microsoft Corp. gave customers a temporary reprieve earlier this summer when it postponed some of the cootroversial volume license changes that had been scheduled to take effect Oct. 1.

USER ANGST

But even with deadlines extended to the end of Februaary, some IT managers are still having a tough time stomaching the changes announced in May — particularly since new licenses or product upgrades may cost them more money.

Several of the 20 IT managers polled by *Computerworld* this month said they haven't decided what to do and feel pressured to make decisions at a time when they're dealing with more pressing priorities and leaner budgets.

"I'm upset that Microsoft's trying to squeeze more money out of us and that it's taking a lot of time and my energy and my peers' energy to understand all of this," said Jeffrey Ratner, assistant vice president of distributed engineering at Enfield, Conn.-based Phoenix Home Life Mutual Insurance Co.

"I was disappointed in the program itself and how it was proposed," said Jon Ricker, president and CEO of Limited Technology Services, the IT arm of The Limited Inc. and Intimate Brands Inc. in Columbus,

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CELL CARRIERS EYE WIRELESS LANs

Exploring dual-mode service for enterprises

BY BOB BREWIN

Four of the country's largest cellular telephone carriers have started exploring how they can incorporate the high data rate hut short range of wireless LAN technology into their nationwide networks, which offer wide coverage areas but low data rates.

Two of those carriers, AT&T Wireless and Cingular Wireless, said their initial focus is on the enterprise — figuring out how to provide combined wireless LAN and cellular data and voice services to large corporatinns, which have solidly embraced industry standard 802.11h wireless LANs during the past two years.

One such company is Landstar System Inc. in Jacksonville, Fla. The transportation services firm uses cellular data networks to communicate with its truck drivers. Patrick Wise, vice prideot for e-commerce at Landstar, called combined

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NEWSPAPER

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KNOWLEDGE CENTER: xSPs

IT a la Carte

Yes, quite a few application service providers have gone bust. But pioneering IT managers say a well-chosen ASP can quickly fill gaps in the IT portfolio — and the risks can be managed. *Computerworld* shows you how.

A FEW HIGHLIGHTS

- How to calculate the ROI
- Why project teamwork is critical
- Monitoring security outsourcers
- Charts of ASP winners and losers
- Legal advice on exit strategies

See Knowledge Center, pages 27-55.

Quick Link

GET MORE IN-DEPTH INFO: Visit our Web site - www.computerworld.com/cgi/fk?20809 - for an extensive collection of articles, research links and white papers on the xSP phenomenon. ■ Advice on negotiating service-level agreements that protect your interests ■ A list of security service providers ■ A white paper on key questions to ask your ASP ■ A primer on how ASPs do what they do

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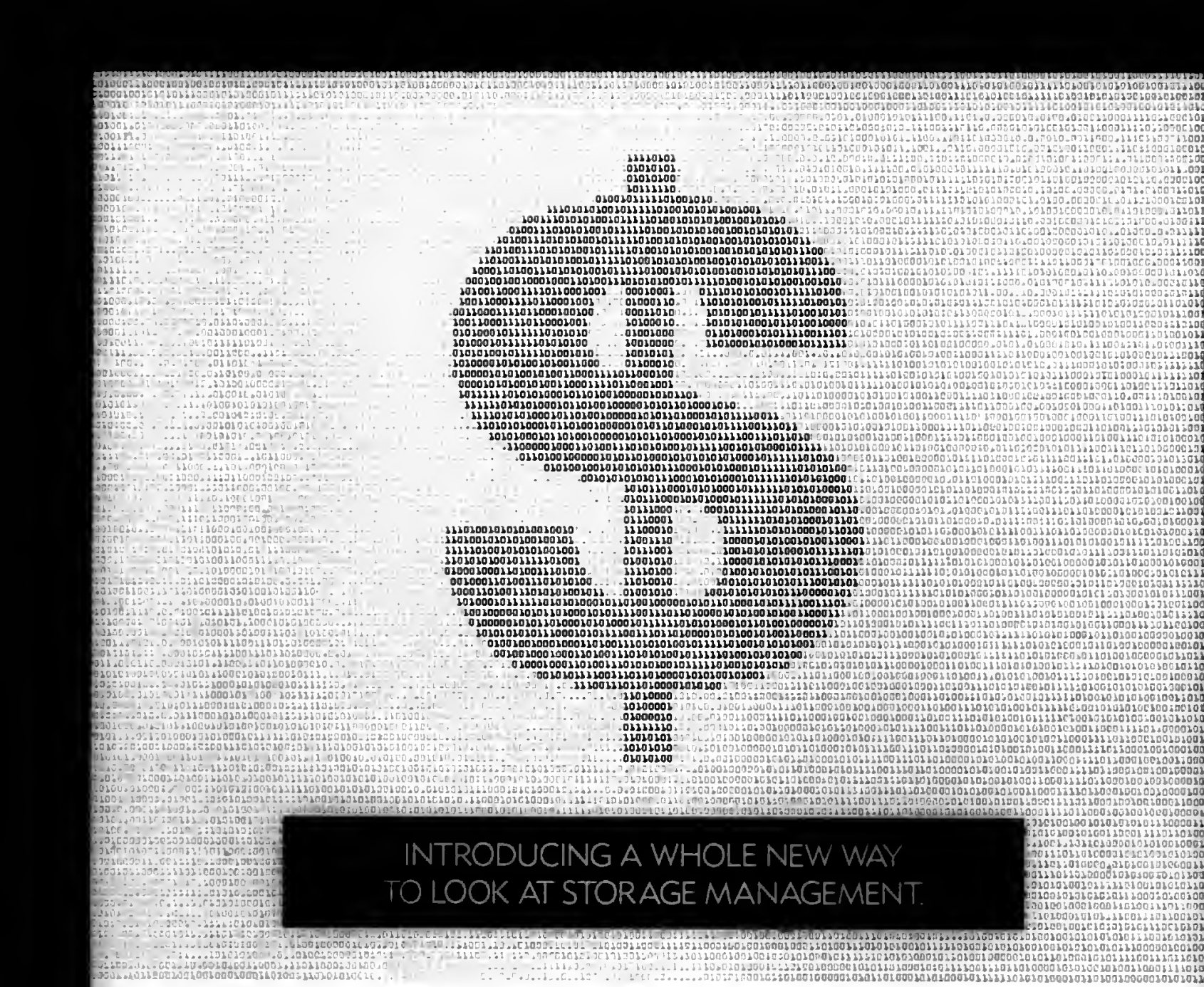

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NEWS

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7 Some Microsoft users are uneasy as the company's antitrust case approaches the remedies phase.

8 Financial services firms deposit their data gems in storage-area networks for safekeeping.

10 Free tools and more patches are added to network managers' Code Red war chests.

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UPDATE ON CANADA'S PRIVACY LAW

Canadian privacy expert Murray Long discusses the first seven months of Canada's tough privacy law and assesses its future impact on e-commerce. **www.computerworld.com/security**

THE BORDERS OF CRM

Gordon Eiland of Borders Group talks about his company's customer relationship management (CRM) implementation and where the bookseller expects to go next. **www.computerworld.com/ecommerce**

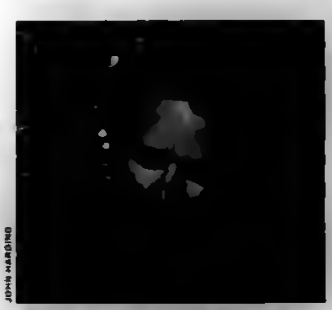
Quick Link For breaking news, updated twice daily at noon and 5 p.m., visit the *Computerworld.com* Web site: **www.computerworld.com/q?q4000**

KNOWLEDGE CENTER: xSPs

27 IT a la Carte

Quite a few application service providers (ASPs) have failed because of poor business plans and the dot-com crash. But that doesn't mean the ASP phenomenon is a total disaster. In fact, we found that users like getting the benefit of a complex application without having to build it themselves.

This month's Knowledge Center concentrates on how to select and monitor an ASP for a successful relationship.



JOHN HARDING

30 Unexpected Benefits

ASPs can help fill gaps in the IT portfolio, say IT managers like Putnam Lovell's Rodric O'Connor. But you need to figure out what to do about ASPs that come in through the back door.

36 Watching the Watcher

"Trust, but verify." That's the philosophy of savvy IT managers as they keep an eye on their security service providers.

ONLINE: Questions customers should ask to see if their security contractor has staying power. **www.computerworld.com/q?22275**

40 Prepare for the Worst

Lawyers like Peter C. Quittmeyer and Asmita Shirali say users need prenuptial agreements to protect their interests, in case the ASP's service deteriorates or the contractor goes belly-up. For example, it's important for users to make sure they can get access to their data and a software license, so they can take over the data processing operation if the ASP fails.

ONLINE: How to make sure a service-level agreement meets your needs. **www.computerworld.com/q?22417**

42 ASP Winners and Losers

A chart listing 14 ASPs that are out of business or no longer offer hosting services. Plus, a list of the largest ASPs — the survivors.

44 Fewer ASPs, More Services

The number of ASPs is dwindling, but customers like Hill, Holliday CIO Mitchell Dickerman are demanding a wider range of services.

JOHN SCARTO

48 When Does An ASP Pay Off?

Precise return on investment formulas are hard to come by. But there are some techniques for determining the financial payoff from using an ASP. Be sure to factor in salaries, capital expenses, opportunity costs and any hidden fees.

STEPHEN DISTEFANO JR.

50 Critical Teamwork

It takes both sides to make an ASP relationship work. The user has to assemble the right project staff to manage the ASP. Large companies may need to deploy an IT project manager, an end-user representative and the CIO.

Also in Knowledge Center:

38 Nicholas Petreley asks: Why aren't ASPs taking over the most tedious jobs in the IT department?

52 Dick Hudson warns that ASPs are bad news for CIOs (and good news for CEOs).

54 ASP Spotlight: A collection of statistics and a glossary.

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The ASP Primer
What's the difference between an ASP, an MSP and a HSP? Here's a complete tutorial on the business models and the challenges ahead.
www.computerworld.com/q?22415

User Turns ASP
Facing pressure to outsource IT operations, a Brooklyn medical center made a dramatic move: It turned itself into a profit-driven ASP.
www.computerworld.com/q?22417

Survivors
When IT staffers at a Los Angeles hospital were transferred to an outsourcer, good management practices meant it wasn't "the kiss of death."
www.computerworld.com/q?22417

AT DEADLINE

Wyly Scales Back Bid to Control CA

Texas billionaire Sam Wyly dropped his effort to take over management control of Computer Associates International Inc. and said his investment firm will instead propose a minority slate of four new board members at CA's annual meeting next week. Wyly is still seeking to oust CA Chairman Charles Wang but withdrew himself as a candidate for the Islandia, N.Y.-based company's board. The move came after two shareholder advisory services sided with CA's management, although both said they did so with reservations.

FBI: Code Red Threat 'Significantly Reduced'

The FBI's National Infrastructure Protection Center said the threat posed by an expected re-emergence of the Code Red worm has been "significantly reduced" because of system patching. The worm was expected to begin launching new denial-of-service attacks last night.

Microsoft Releases New Outlook Patch

Microsoft Corp. issued a patch to plug a security hole in its Outlook e-mail software that was detailed last month. The company initially advised users to disable some ActiveX controls while it developed the patch.

Accenture to Cut 1,500 More Workers

Hamilton, Bermuda-based Accenture Ltd. said it's laying off another 1,500 workers, two-thirds of whom are consultants. The cutback reduces the consulting firm's workforce by 2% and follows a 600-employee layoff in June. The company is also expanding a sabbatical program to consultants in Europe and Asia.

Copyright Law Chills IT Security Research

Critics say digital copyright protection censors legitimate IT, scientific research

BY DAN VERTON
WASHINGTON

A CLOUD of fear and uncertainty hung over the 10th annual Usenix Security Symposium here last week, as IT researchers wondered nervously whether they would be hauled off to jail by the FBI for revealing security flaws in an anti-piracy technology backed by the music industry.

That didn't happen, but new charges of government censorship are being levied by critics of a 1998 law designed to protect copyrighted digital material, such as software, from unauthorized access and copying. If the law isn't changed, legitimate scientists and corporate IT workers conducting research to improve computer and network security could be sent to jail, legal experts said.

The team of IT researchers, headed by Edward Felten, a professor at Princeton University, and flanked by lawyers from the San Francisco-based Electronic Frontier Foundation (EFF), originally planned to present the paper at a conference in April. But they backpedaled after the Recording Industry Association of America (RIAA) threatened to sue.

Felten took the RIAA to court in June, and the association eventually retracted its legal threats and gave Felten permission to present and publish his paper only at the Usenix symposium.

The paper, titled, "Reading Between the Lines: Lessons from the SDMI Challenge," makes public several inherent security flaws in a technology developed to prevent unauthorized copying of digital music files. Felten and others conducted the research last September while taking part in a security contest sponsored by a consortium of recording companies known as the Secure Digital Music Initiative (SDMI).

Despite what Felten and others called "a partial victory" for science and the First Amendment rights of legitimate researchers, the overly broad nature of the 1998 Digital Millennium Copyright Act (DMCA) threatens to stifle future IT research, according to legal experts.

"The DMCA set up a system where, essentially, the government outsourced censorship of science," said Cindy Cohn, the EFF's legal director. The EFF is representing Felten, as well as Dmitry Sklyarov, a Russian programmer arrested on July 16 in Las Vegas for allegedly developing a software program that unlocks the encryption used to protect the copyrights of electronic-book publishers.

Other scholars "have been chilled" by what happened to Felten, and foreign cryptographers are afraid to travel to the U.S., said Cohn.

A Matter of Scope

Enacted in 1998, the DMCA broadly outlines restrictions on the distribution or sale of any product, service or technology that circumvents access protections to copyrighted material. Although the law provides exemptions for law enforcement officials as well as encryption and security researchers, legal experts said it's unclear how far the law extends and whether corporate IT workers conducting integration work could be caught in its web.

"There are questions about scope," said Peter Jaszi, a law professor at American University's Washington College of Law. A lot "depends on the actual consent" of the owner or copyright holder of the software, said Jaszi. In the case of encryption research, "a good-faith attempt" to gain such consent is necessary, he said.

But not everyone agrees that the DMCA is a bad thing. Industry representatives, as well as authors and other content providers, have vehemently argued that the DMCA protects their right to earn a living by discouraging dishonest people from violating copyright protections.

The DMCA is "a well-balanced piece of legislation that took into account every group's interests," said Keith Kupferschmid, intellectual property counsel for the Software & Information Industry Association in Washington.

In the Sklyarov case, for example, the Russian programmer engaged in the trafficking of software that circumvented technological protection measures, Kupferschmid said. Sklyarov, an employee at Moscow-based ElcomSoft Co., allegedly tried to sell copies of the circumvention software at the Def Con conference in Las Vegas.

Dan Langin, an attorney who specializes in computer security and represents companies such as Redwood City, Calif.-based Recourse Technologies Inc., said the fair-use clause of the DMCA excludes reverse-engineering for the purposes of doing integration work and legitimate research. In that respect, "IT workers have pretty solid ground to stand on," he said. Nonetheless, Langin added that a written agreement with software companies for access to code beyond the normal application programming interface is a critical protection.

For Felten and other researchers, however, the uncertainty of how far the law extends is cause enough to stifle legitimate research that can have positive effects beyond computer security.

"The DMCA seems to cast a very wide net and will catch a lot of things besides computer security," said Felten. For example, the echo-detection methods used by Felten's research team to break the security of music CDs is a breakthrough technology that can be used by seismologists, he said.

"People don't know what they can say and what they can write," said Felten. "The scientific community can't operate that way."

AT A GLANCE

Sorry, but You Can't Do That

ANTICIRCUMVENTION

"No person shall manufacture, import, offer to the public, provide, or otherwise traffic in any technology, product, service, device, component, or part thereof, that . . ."

– 17 U.S.C. § 1201(a) of the DMCA

(A) Is primarily designed or produced for the purpose of circumventing a technological measure that effectively controls access to a copyrighted work

(B) Has only limited commercial use other than to circumvent a technological measure that effectively controls access to a copyrighted work

(C) Is marketed for the purpose of circumventing a technological measure that effectively controls access to a copyrighted work

ANTITRAFFICKING

"No person shall manufacture, import, offer to the public, provide, or otherwise traffic in any technology, product, service, device, component, or part thereof, that . . ."

– 17 U.S.C. § 1201(b) of the DMCA

(A) Is primarily designed or produced for the purpose of circumventing a technological protection measure that effectively protects a right of a copyright owner

(B) Has only limited commercially significant purpose or use other than to circumvent protection afforded by a technological copyright protection measure

(C) Is marketed for the purpose of circumventing protection afforded by a technological copyright protection measure

Microsoft Faces Same Old Threats in New Remedy Phase

Government talks tough; several options, including a breakup, remain possibilities

BY PATRICK THIBODEAU
WASHINGTON

When management at Jim Havens' company, Illinois Tool Works Inc. subsidiary Tacc, discusses its Microsoft migration strategy, the software giant's antitrust case is like a ghost in the room. Without ever being mentioned, the legal case silently influences decisions. "The instability is always back there," Havens said.

Havens, IT manager at the Rockland, Mass.-based manufacturing company, said Microsoft Corp.'s continuing legal problems are keeping him from considering a migratioo to Windows XP.

"I don't know what the right answer is," said Haven.

The answer may come in the case's next phase: deciding what remedy to impose on Microsoft. The U.S. Court of Appeals last week rejected Microsoft's request to delay the case while its appeal to the U.S. Supreme Court is pending. The case will return Friday to the lower court for remedy hearings and the appointment of a new judge. Microsoft has asked the high court to throw out the trial judge's rulings for his disparaging out-of-court comments about the company. A decisioo on that appeal is due in October.

The government hasn't revealed its proposed remedy, but it's talking tough.

"Any remedy has to change fundamentally Microsoft's use of monopoly power in the market," said Richard Blumenthal, Connecticut's attorney general and one of the leaders of the 18-state coalitioo involved in the case, in an interview last week. "The test set forward by the Supreme Court indicates that there has to be fundamental changes."

That test was outlined by the appeals court in its June 28 decision. Citing three Supreme Court cases, the appeals court said a test for a remedy should include the ability to "terminate the illegal monopoly."

The court also said a remedy must "unfetter" the market from anticompetitive conduct, deny the defendant any benefits it may derive as a result of the violation and ensure "that there remain no practices likely to result in the monopolization in the future."

Trial Judge Thomas Penfield Jackson ordered the company to be split in two, separating the operating system unit from other lines of business, but he never held hearings on his proposal and didn't explain how a breakup would restore competition. For those reasons and others, his remedy was rejected by the appeals court.

The court, however, upheld findings that Microsoft had illegally maintained a monopoly in operating systems, while rejecting the claim that the company had sought to monopolize the browser market. The court also sent the finding of "illegal tyiog" back to trial court for a new hearing using a different standard.

Bruce Sokler, an antitrust attorney at Mintz, Levin, Cohn, Ferris, Glovsky and Popeo PC in Washington, said that without finding fault on the tying issue, which concerns the integration of different products, the justification for a breakup isn't strong.

Where the appeals court did fault the company, particularly on its exclusive contracts, "the first remedy usually thought of ... would be fencing-in-conduct remedies," said Sokler.

A remedy that makes sense to Wesley Howland, a programmer/analyst at Cessna Aircraft Co. in Wichita, Kan., is to force Microsoft to release its Windows source code for other companies to develop competing Windows versions. With pending changes to Microsoft's enterprise operating system licensing, "now they're taking advantage of their monopoly," Howland said.

But Mark Hawkins, IT manager at Augusta Newsprint Co., in Augusta, Ga., said Microsoft should be left alone.

"Microsoft is a strong company and they earned it, and the government has no reasoo or means to go interfere with that," said Hawkins.

What Fate Awaits?

The threat of a breakup hasn't disappeared for Microsoft since the June 28 U.S. Court of Appeals decision in its antitrust case, but legal experts disagree on how strong the threat that remains is. The court can consider several options:

Structural remedies:

Breakup. Microsoft could be divided among business units, as Jackson proposed. Theoretically, the court also has the option of creating "Baby Bills," separate units that would compete against one another.

Compulsory licensing. This would require Microsoft to license Windows to competitors, which could customize the application and create competing versions.

Conduct remedies:

Contracts. Microsoft could be prohibited from entering exclusive contracts that favor its products.

Pricing. It could be required to publish its Windows pricing to PC manufacturers.

APIs. The company could be required to disclose the APIs needed to ensure interoperability to third-party developers, something the company says it does now.

Developers Receive Talisker Beta Version of Windows CE

Link between it and upcoming Pocket PC release still unclear

BY BOB BREWIN

Microsoft Corp. has introduced the beta version of its next-generation Windows CE operating system, used in Pocket PCs and embedded systems. The company said it expects to have the final version of the new operating system, code-named Talisker, ready for release by year's end.

The enhancements built into Talisker, Microsoft said, won't be available in the new version of the the company's Pocket PC operating system, code-named Merlin, also slated for release before year's end.

Megan Kidd, product manager for Microsoft's embedded systems and appliance platforms group, said the new Windows CE includes beefed-up support for the 802.xx wireless LANs widely used by corporations. The support includes enhanced security and the ability to support roaming betweeo different networks. Talisker also features a Platform Wizard that will make it easier for developers to build onto targeted devices, Kidd said.

She said Talisker is targeted at original equipment manufacturers, with corporate application developers building their systems on top of the new operating system.

Kidd added that the Platform Wizard provides developers with a "baseline configuratioo" of a targeted device, allowing them to quickly customize their requirements. She said the new operating system should "definitely make it easier to port applications from the desktop" to embedded devices.

The built-in wireless LAN security was designed to meet requirements for the "defense in-depth" strategy advocated by security consultants after a series of papers and mock attacks that exposed holes in the built-in Wired Equivalent Privacy protocol in 802.11b wireless LAN systems.

Wireless security enhancements in Talisker include support for smart-card encryption and an encrypted/protected store oo the enterprise level.

Palm Inc. in Santa Clara, Calif., said it doesn't view Talisker as much of a threat.

"This sounds like an incremental release of their product, and it's a lot of stuff you can do today in a Palm handheld," said Michael Mace, Palm's chief competitive officer. "We already have support for 802.xx, and our OS is so simple, our developers don't need a wizard."

Mace said he was "confused" about the relationship of Talisker to the new Merlin version of the Pocket PC operating system. Microsoft didn't help allay that confusion, declining to provide any details about Merlin until closer to the product's release date.

A Look at Talisker

- **Beefs up** wireless security with support for smart-card encryption
- **Includes** built-in support for wireless LAN roaming
- **Includes** a built-in Platform Wizard that makes it easy to port from the desktop and configure devices
- **Won't include these features** in new version of Pocket PC, slated for release by year's end

Quick Link For full coverage of Microsoft's legal battles, visit our Web site.
www.computerworld.com/q?s1100

Merrill Lynch Hands Over SAN Management

Expects to cut 20% off TCO of storage system

BY LUCAS MEARIAN

MERRILL LYNCH & Co.'s chief technology officer, Chris Corrado, is juggling an enormous server consolidation at the brokerage's New York headquarters. At the same time, he's migrating its business data to a storage subnetwork, so the last thing he wanted to do was worry about what storage technology would work best.

The answer for Corrado, and an increasing number of other Global 2,000 IT executives, was to outsource his storage-area network (SAN).

While Merrill Lynch's IT staff could have built the SAN in-house, Corrado said he expects to save 20% on the total cost of ownership of the storage network by having Waltham, Mass.-based Storage Networks Inc. build and then remotely manage the SAN.

The effort began in January, and Corrado expects the project to be completed within the next year.

To date, Merrill Lynch has been using just 40% of the storage capacity of its direct-attached storage system. Meanwhile, maintenance and upgrade costs have been steadily increasing.

The world's largest brokerage house is taking a slow and cautious approach to migrating its business and mission-critical data to a Fibre Channel SAN over the next few years. Currently, about 15% to 20% of the firm's data resides on the SAN.

"This is a long process. You can try to do it fast — if you're suicidal," Corrado said.

CORRADO: Merrill Lynch is taking a cautious approach to SAN migration.

Corrado cautioned those entering into contracts with storage service providers (SSP) to read the fine print of any service-level agreement and make it work to their advantage.

"You have to force these guys to pass along not only hardware cost savings over the years but productivity costs, considering storage software will get better as well," Corrado said. "I tell them, 'I don't care how you do it, but you're going to make utilization in my shop go up, so, on average, I want my price to go down.'"

Part of the impetus behind Merrill Lynch's outsourcing deal: The firm's IT staffers are busy consolidating about 2,500 servers at its New York headquarters down to 250 to 300 machines over the next year.

Boom Times for SSPs

For a marketplace that last year took a huge revenue nose dive in conjunction with the dot-com debacle, SSPs are now, ironically, enjoying a comeback through on-site management of storage and software sales. In large part, that's due to the fact that IT managers are trying to stretch every dollar in today's slumping economy.

According to San Jose-based Dataquest Inc., the North American SSP market is expected to grow from $176 million last year to more than $6 billion by 2004.

SSPs once depended heavily on hosting their customers' storage at point-of-presence facilities. But large enterprises never warmed to the idea of letting someone else handle their mission-critical data. So SSPs were mainly used for backup and disaster recovery.

Now, "over 50% of the revenue in the SSP market appears to be coming from professional services, not storage services," said Greg Brashier, an analyst at Strategic Research Corp., a market research firm in Santa Barbara, Calif.

According to Bob Zimmerman, an analyst at Giga Information Group Inc. in Santa Clara, Calif., the reason SSPs are becoming more popular for managing SANs is that they can often reduce a firm's costs by as much as 40%, or 15 cents per megabyte per month to run vs. 21 cents per month using in-house staff.

"[SSPs] are also getting prices for hardware you couldn't touch," Zimmerman said, pointing out that vendors get wholesale advantages.

Corrado said that if Merrill Lynch's outsourcing project didn't reduce costs by at least 10%, he wouldn't do it. "It's just not worth the risk," he said.

Equities Settlement Giant Moves to SAN Infrastructure

System to manage 15TB-plus of data

BY LUCAS MEARIAN

The Depository Trust & Clearing Corp. is in the middle of a two-year migration from a mostly mainframe and decentralized client/server computer model to a storage-area network (SAN) that will centrally control more than 15TB of internal data related to $23 trillion worth of securities.

Depository Trust, a New York-based firm that provides the primary infrastructure for the clearing and settlement of most of the equity, corporate debt and bond transactions in the U.S., announced its SAN migration last week.

Since the project began 10 months ago, Depository Trust has taken a cautious approach to adopting the SAN model, beginning with the company's tape backup systems and the more recent integration of its disk arrays, said Michael Obiedzinski, vice president of information systems at the firm. Important data related to daily clearing and settlement activities will remain on its legacy mainframe system for the immediate future. "We put servers on the SAN that we considered to have an internal impact first," he said. "Some applications will be on our mainframes for years to come."

Depository Trust is moving to the SAN in response to an enormous growth in data volume. That increase is being driven by a boom in technology projects at the firm, and the result is a shifting of tons of data from the server environment to the storage network. In the past four months, data has increased fourfold at the firm.

Obiedzinski is also hoping to use the SAN to make more effective use of the 30% to 40% of available data space that's being wasted by inefficiencies in the current storage architecture, he said.

Obiedzinski declined to say how much money Depository Trust has spent on the SAN project. He did say that switches from Brocade Communications Systems Inc. in San Jose provided the networking foundation for the company's storage environments "to help us quickly realize a return on our technology investment in servers and storage."

For instance, by using the centrally managed SAN, Depository Trust can now manage four times as much data with the same number of administrators and had increased data throughput by moving from clunky 4mm tape drives to a speedier Fibre Channel network.

In the early stages of the project, Depository Trust had to overcome some technical hurdles, such as the interoperability between the Fibre Channel and the SAN vendor equipment.

But Obiedzinski said his group is addressing those issues by working closely with its key storage vendors, including Brocade, Hopkinton, Mass.-based EMC Corp. and Islandia, N.Y.-based Computer Associates International Inc.

"The proper standards and interoperability will emerge," Obiedzinski said. "The current challenge is to identify best-of-breed SAN management tools that are well integrated."

Quick Link For more news and information on storage technologies, visit our Web site.
www.computerworld.com/q?k1700

Sold on SANs

The company: **The Depository Trust & Clearing Corp.** in New York provides the primary infrastructure for the clearing and settlement of most of the equity, corporate debt and bond transactions in the U.S.

The project: The company is 10 months into a **two-year migration** from a mainframe and decentralized client/server computer model to a SAN that will centrally control more than 15TB of internal data.

The benefits: The company has **increased data backup performance by four times its original throughput** and reduced the time to restore data, while increasing application uptime. In addition, by interconnecting its SANs across metropolitan optical networks, Depository Trust **has enabled backup across remote sites,** further reducing the cost of data backup and recovery and eliminating the need for more expensive, off-site data storage.

Merrill Lynch Hands Over SAN Management

Expects to cut 20% off TCO of storage system

BY LUCAS MEARIAN

MERRILL LYNCH & Co.'s chief technology officer, Chris Corrado, is juggling an enormous server consolidation at the brokerage's New York headquarters. At the same time, he's migrating its business data to a storage subnetwork, so the last thing he wanted to do was worry about what storage technology would work best.

The answer for Corrado, and an increasing number of other Global 2,000 IT executives, was to outsource his storage-area network (SAN).

While Merrill Lynch's IT staff could have built the SAN in-house, Corrado said he expects to save 20% on the total cost of ownership of the storage network by having Waltham, Mass.-based Storage Networks Inc. build and then remotely manage the SAN.

The effort began in January, and Corrado expects the project to be completed within the next year.

To date, Merrill Lynch has been using just 40% of the storage capacity of its direct-attached storage system. Meanwhile, maintenance and upgrade costs have been steadily increasing.

The world's largest brokerage house is taking a slow and cautious approach to migrating its business and mission-critical data to a Fibre Channel SAN over the next few years. Currently, about 15% to 20% of the firm's data resides on the SAN.

"This is a long process. You can try to do it fast — if you're suicidal," Corrado said.

CORRADO: Merrill Lynch is taking a cautious approach to SAN migration.

Corrado cautioned those entering into contracts with storage service providers (SSP) to read the fine print of any service-level agreement and make it work to their advantage.

"You have to force these guys to pass along not only hardware cost savings over the years but productivity costs, considering storage software will get better as well," Corrado said. "I tell them, 'I don't care how you do it, but you're going to make utilization in my shop go up, so, on average, I want my price to go down.'"

Part of the impetus behind Merrill Lynch's outsourcing deal: The firm's IT staffers are busy consolidating about 2,500 servers at its New York headquarters down to 250 to 300 machines over the next year.

Boom Times for SSPs

For a marketplace that last year took a huge revenue nose dive in conjunction with the dot-com debacle, SSPs are now, ironically, enjoying a comeback through on-site management of storage and software sales. In large part, that's due to the fact that IT managers are trying to stretch every dollar in today's slumping economy.

According to San Jose-based Dataquest Inc., the North American SSP market is expected to grow from $176 million last year to more than $6 billion by 2004.

SSPs once depended heavily on hosting their customers' storage at point-of-presence facilities. But large enterprises never warmed to the idea of letting someone else handle their mission-critical data. So SSPs were mainly used for backup and disaster recovery.

Now, "over 50% of the revenue in the SSP market appears to be coming from professional services, not storage services," said Greg Brashier, an analyst at Strategic Research Corp., a market research firm in Santa Barbara, Calif.

According to Boh Zimmerman, an analyst at Giga Information Group Inc. in Santa Clara, Calif., the reason SSPs are becoming more popular for managing SANs is that they can often reduce a firm's costs by as much as 40%, or 15 cents per megabyte per month to run vs. 21 cents per month using in-house staff.

"[SSPs] are also getting prices for hardware you couldn't touch," Zimmerman said, pointing out that vendors get wholesale advantages.

Corrado said that if Merrill Lynch's outsourcing project didn't reduce costs by at least 10%, he wouldn't do it. "It's just not worth the risk," he said.

Equities Settlement Giant Moves to SAN Infrastructure

System to manage 15TB-plus of data

BY LUCAS MEARIAN

The Depository Trust & Clearing Corp. is in the middle of a two-year migration from a mostly mainframe and decentralized client/server computer model to a storage-area network (SAN) that will centrally control more than 15TB of internal data related to $23 trillion worth of securities.

Depository Trust, a New York-based firm that provides the primary infrastructure for the clearing and settlement of most of the equity, corporate debt and bond transactions in the U.S., announced its SAN migration last week.

Since the project began 10 months ago, Depository Trust has taken a cautious approach to adopting the SAN model, beginning with the company's tape backup systems and the more recent integration of its disk arrays, said Michael Obiedzinski, vice president of information systems at the firm. Important data related to daily clearing and settlement activities will remain on its legacy mainframe system for the immediate future. "We put servers on the SAN that we considered to have an internal impact first," he said. "Some applications will be on our mainframes for years to come."

Depository Trust is moving to the SAN in response to an enormous growth in data volume. That increase is being driven by a boom in technology projects at the firm, and the result is a shifting of tons of data from the server environment to the storage network. In the past four months, data has increased fourfold at the firm.

Obiedzinski is also hoping to use the SAN to make more effective use of the 30% to 40% of available data space that's being wasted by inefficiencies in the current storage architecture, he said.

Obiedzinski declined to say how much money Depository Trust has spent on the SAN project. He did say that switches from Brocade Communications Systems Inc. in San Jose provided the networking foundation for the company's storage environments "to help us quickly realize a return on our technology investment in servers and storage."

For instance, by using the centrally managed SAN, Depository Trust can now manage four times as much data with the same number of administrators and had increased data throughput by moving from clunky 4mm tape drives to a speedier Fibre Channel network.

In the early stages of the project, Depository Trust had to overcome some technical hurdles, such as the interoperability between the Fibre Channel and the SAN vendor equipment.

But Obiedzinski said his group is addressing those issues by working closely with its key storage vendors, including Brocade, Hopkinton, Mass.-based EMC Corp. and Islandia, N.Y.-based Computer Associates International Inc.

"The proper standards and interoperability will emerge," Obiedzinski said. "The current challenge is to identify best-of-breed SAN management tools that are well integrated."

Quick Link For more news and information on storage technologies, visit our Web site.
www.computerworld.com/y7d700

Sold on SANs

The company: The Depository Trust & Clearing Corp. in New York provides the primary infrastructure for the clearing and settlement of most of the equity, corporate debt and bond transactions in the U.S.

The project: The company is 10 months into a two-year migration from a mainframe and decentralized client/server computer model to a SAN that will centrally control more than 15TB of internal data.

The benefits: The company has increased data backup performance by four times its original throughput and reduced the time to restore data, while increasing application uptime. In addition, by interconnecting its SANs across metropolitan optical networks, Depository Trust has established backup services remote sites, further reducing the cost of data backup and recovery and eliminating the need for more expensive, off-site data storage.

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BRIEFS

Restructuring Leaves Dell With Q2 Losses

Dell Computer Corp. said it lost $101 million in its second quarter ended Aug. 3, as the PC and server vendor absorbed a $742 million charge related to layoffs and facility closings. Last year, the company saw a profit of $903 million for the same period. Revenue dropped 1%, from $7.7 billion a year ago to $7.6 billion.

HP Suffers Another Big Drop in Profits

Hewlett-Packard Co. reported a net profit of $111 million for its fiscal third quarter ended July 31, down 89% from $1 billion a year ago. Revenue fell 14%, from $11.6 billion to $10.1 billion. Sales fell in all geographic regions, and HP CEO Carly Fiorina said she doesn't expect to see an improvement in IT spending until next year.

Coors Outsources Some IT to EDS

Coors Brewing Co. in Golden, Colo., agreed to a five-year "on-demand" IT outsourcing deal with Electronic Data Systems Corp. Plano, Texas-based EDS will host Coors' SAP applications and provide other IT services as needed. About 70 Coors employees will shift to EDS as part of the deal. Financial terms of the deal weren't disclosed.

IRS Signs Deal to Modernize Web Site

The Internal Revenue Service has signed on with Bermuda-based consulting firm Accenture Ltd. to modernize its Web site.

Planned changes to the site include streamlining access and improving help desk integration for users who have problems on the site. The contract has a potential value of $33.6 million over five years, but many of the changes are due early next year.

Microsoft Warns of New Code Red Risk

Five new IIS vulnerabilities discovered; firm issues patch plus two security tools

BY JAIKUMAR VIJAYAN AND SAM COSTELLO

MICROSOFT CORP last week issued a new patch for its Internet Information Server (IIS) software to address five newly discovered security holes, including one that can be exploited by the Code Red worms.

The company also released two free tools that are supposed to let users assess the security levels of their Microsoft products and check to see if they have installed all recommended patches. Microsoft said it hopes to speed up the patching of systems, thus leading to a decrease in the spread of worms such as Code Red.

The cumulative patch for IIS, which can be downloaded from Microsoft's Web site, includes the functionality of all previously released patches for Versions 4.0 and 5.0 of the Web server software, in addition to addressing the new holes.

Three of the five previously unknown flaws could enable malicious hackers to launch denial-of-service attacks, Microsoft said. Of the three, one that affects only IIS 4.0 is particularly serious because it puts systems at the mercy of the Code Red worms, the company said in an advisory.

The other newly discovered holes could allow attackers to gain administrative access to Web servers. Because of that and the Code Red risk, systems administrators should apply the new patch to all machines running IIS 4.0 or 5.0 as soon as possible, said Scott Culp, a Microsoft security manager.

Meanwhile, the new tools aimed at helping users keep their systems up to date on patches were released almost a month after the first outbreak of Code Red, which struck again late last month and was followed this month by a similar worm, dubbed Code Red II. Security analysts said that a failure to patch systems for an IIS flaw publicized by Microsoft in June contributed to the rapid spread of the worms.

Microsoft teamed with security software developer Shavlik Technologies LLC in St. Paul, Minn., to build the HFNetChk and Microsoft Personal Security Advisor tools. The latter product is aimed at small businesses and home users, but HFNetChk was developed for use on corporate networks.

HFNetChk is a command-line tool that runs on Windows NT 4.0 and Windows 2000, Microsoft said. The software can scan the status of all machines on a network, check their patches against an XML-based patch database maintained by Microsoft and deliver a report detailing the machines that need to be updated.

The tools are the first in a series of products from Microsoft aimed at helping users better secure their systems, Culp said. He added that new tools related to IIS and other software will be released within the next few weeks. "Tools like this will go a long way toward preventing things like Code Red in the future," Culp said.

Using HFNetChk, for instance, IIS users would have been proactively informed about the availability of the new patch, Culp said.

Such moves reflect an increased urgency about security at Microsoft, said Eric Hemmendinger, an analyst at Aberdeen Group Inc. in Boston.

"I think they've begun to realize that users take such issues very seriously and that [not addressing them] could slow Microsoft's deployment in the enterprise," Hemmendinger said.

Costello is a reporter for the IDG News Service.

Code Red Finds Another Hole

Microsoft said a new vulnerability in its IIS software "is being actively exploited" by the Code Red worm, even on systems that were patched to prevent infection.

What systems are affected: Computers running IIS 4.0 in a configuration that redirects Web site visitors from out-of-date Web addresses to current ones.

The risk for users: A denial-of-service attack could cause the IIS server to fail and temporarily stop processing requests for Web pages.

Why Code Red is involved: When the worm tries to infect a server, it sends a request containing invalid length information that triggers the attack.

Newsgroup Service in Windows Could Trigger Attacks

IIS wasn't the only Microsoft product fingered for security flaws last week. The company also said a hole in a newsgroup service that comes with Windows and its Exchange messaging server could be used to launch denial-of-service attacks against some systems.

The problem occurs in the Network News Transport Protocol (NNTP) service in Windows NT 4.0, Windows 2000 and Exchange 2000, Microsoft said. NNTP is a standard protocol for posting, distributing and archiving news articles via Internet-based servers.

The vulnerability results from a memory leak in a program that processes news postings sent over the Internet, according to a Microsoft advisory. Postings that are constructed in a particular manner and sent to an affected server would trigger the memory leak, said Scott Culp, a Microsoft security manager. By sending a sufficient number of such malformed postings to an affected server, Culp added, an attacker could deplete the server's available memory and bring down a system.

Any NNTP news server that accepts postings from the Internet and is running the affected software is vulnerable to such attacks, Microsoft cautioned. But the company issued a patch that it claims will eliminate the problem by properly deallocating memory after a posting is processed.

One mitigating factor is that the NTTP service doesn't run by default on Windows or Exchange, Culp said.

Also minimizing the potential impact of the NNTP flaw is the fact that most large newsgroup servers aren't Windows-based, said Russ Cooper, an analyst at security firm TruSecure Corp. in Reston, Va.

"It's an issue that doesn't affect a very large number of people," Cooper said. But for those users who are running a Windows-based NNTP service, he added, "the message here is [to] get the patch."

Microsoft said the vulnerability doesn't let attackers take administrative control of systems or tamper with data stored on vulnerable servers. Administrators whose systems are attacked can restore service by shutting down the IISAdmin service and restarting the affected machines.

Memory leaks such as the one in the NNTP service are caused when a particular process requests additional memory from the operating system to perform a task and then fails to return the memory when the job is complete.

– Jaikumar Vijayan

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Opportunity no longer knock
These days, it darts past the
before you can even reac

sas

Continued from page 1

Wireless

wireless LAN and cellular data service "a perfect world," if the carriers can find a way to integrate the two systems so that a user can automatically shift from one to the other.

But the carriers need to ensure that "I get connected to my network and not someone else's," said Wise. "We already have enough security problems with 802.11b networks."

Joe Burdick, telecommunications network manager for wireless data at United Parcel Service Inc. in Atlanta, is well aware of the cellular carriers' wireless LAN plans. "We've had presentations from [the carriers]," he said. But he said UPS is concerned about the implications for its plans to develop its own dual-mode terminal for use by its drivers.

That terminal will be designed to work on the UPS private wireless LAN network, but Burdick said he worries that the proliferation of wireless LANs will cause the driver's device to "wake up and seek out another network and server." If the carriers go ahead with their plans, it could lead to widespread use of devices that would automatically seek to log on to the UPS network, he added.

"I understand why [the carriers] want to do this," Burdick said. "But I don't see how they can resolve the security or [network] management issues."

FedEx Corp., meanwhile, has already equipped its carriers with dual-mode wireless LAN/cellular devices. Ken Pasley, FedEx's director of wireless systems development, said he would be interested in a carrier offering that provided him with plug-and-play wireless capability in both modes. That, would require carriers taking on system integration tasks now handled by FedEx itself.

While the carriers emphasized that they haven't made any decisions about how or when they will build wireless LAN capabilities into their networks, they said manufacturers have already started work on the development of dual-mode wireless LAN/cellular PC network infrastructures, PC cards and phones.

Tom Trineer, vice president of multimedia strategy at Redmond, Wash.-based AT&T Wireless, said that some "very big" base station and handset companies have already started work on dual-mode equipment, but he declined to identify those companies.

Dave Williams, vice president of strategic planning at Atlanta-based Cingular Wireless, said that in addition to looking at using wireless LANs for data, his company has started to consider using them to deliver voice-over-IP service on corporate campuses.

Williams said Cingular is exploring how to provide users with the equipment and systems that would let them easily shift from corporate wireless LAN networks offering speeds of up to 11M bit/sec. on the 802.11b standard to the company's third-generation cellular data service, which can deliver speeds from 144K to 384K bit/sec. (see chart).

	802.11x	Cellular Data
Current speeds	11M bit/sec. (802.11b)	19.6K to 28.8K bit/sec.
Planned speeds	2002: 55M bit/sec. (802.11a)	Late 2001 to 2003: 144M to 2M bit/sec. (2M bit/sec. available only while stationary)
Coverage	Corporate and academic campuses; public-access networks in airports, hotels, coffee shops	Nationwide
Pricing	Free on campuses; public-access "all you can eat" connections run $5 per session	Per-minute charges; carriers decline to disclose pricing until rollout
Roaming	Not available	Available today; includes automatic billing and settlement between carriers
Potential	Nationwide service at up to 55M bit/sec. and automatic roaming, with pricing following ISP model of $19.95 to $29.95 per month	Nationwide service limited to 2M bit/sec.; pricing continues to be by the minute

Trineer agreed that such a dual-mode enterprise strategy makes sense and could provide corporations with the means to easily deliver data stored in enterprise resource planning and customer relationship management systems to mobile workers, regardless of their location or the speed of their connections.

Besides offering dual-mode network infrastructure and cards to enterprise users, Williams said, Cingular is investigating services that would allow enterprise users to easily roam and switch from cellular mobile data to enterprise and public-access wireless LANs.

Such LANs have been installed by companies like Richardson, Texas-based MobileStar Network Corp., in locations ranging from American Airlines lounges to Starbucks coffee shops.

As public-access wireless LAN networks proliferate — Austin, Texas-based Wayport Inc. is battling MobileStar in the hotel and airport markets — nationwide cellular carriers can provide in-house expertise to handle roaming and billing between multiple systems, as well as build in security on the back end, Trineer said

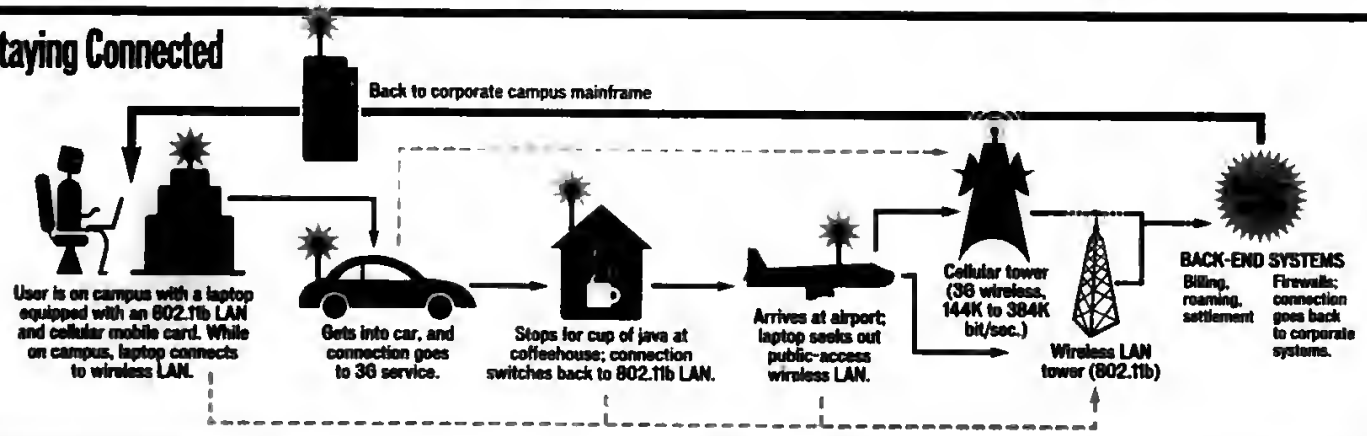
Craig Mathias, an analyst at Farpoint Group in Ashland, Mass., said the carriers are beginning to focus on wireless LANs as an adjunct to their networks for a host of reasons, including low-cost equipment, spectrum availability (wireless LANs operate in the unlicensed 2.4-GHz band, meaning the carriers don't have to write billion-dollar checks to the government for frequencies) and throughput that may never be equaled by mobile cellular data networks.

Plus, Mathias said, "wireless LANs are going to be everywhere — large enterprises, small business, transportation hot spots and the home."

Trineer said he views the unlicensed nature of wireless LANs as a downside because of possible interference problems. He also questioned the economics of the "hot spot" business pursued by MobileStar in airports, hotels and coffeehouses. Users, he said, "place a premium on ubiquitous coverage."

Verizon Wireless Inc. and Sprint PCS Group have also started to look at how they can mesh wireless LAN services with their existing networks. But spokesmen for both declined to provide details, saying only that they are exploring how wireless LANs can complement existing services.

Staying Connected


Back to corporate campus mainframe
User is on campus with a laptop equipped with an 802.11b LAN and cellular mobile card. While on campus, laptop connects to wireless LAN.
Gets into car, and connection goes to 3G service.
Stops for cup of java at coffeehouse; connection switches back to 802.11b LAN.
Arrives at airport; laptop seeks out public-access wireless LAN.
Cellular tower (3G wireless, 144K to 384K bit/sec.)
Wireless LAN tower (802.11b)
BACK-END SYSTEMS
Billing, roaming, settlement
Firewalls; connection goes back to corporate systems.

3G Requirements Raise Stakes in Spectrum Battle

Schools, Pentagon and mobile business battling for rich but finite resource

BY BOB BREWIN

A DECISION on reallocating radio frequency spectrum, now used by school systems, to support third-generation (3G) wireless services could be made by the end of this month, according to Federal Communications Commission Chairman Michael K. Powell.

Current spectrum stakeholders and potential users have been fighting all year over what's viewed as the raw material of the mobile information economy. Former President Bill Clinton triggered the fight late last year when he put the need for new spectrum to support 3G high-speed wireless data in the rawest of economic terms: Find it and exploit it, or risk losing the technology lead.

Following that mandate, the FCC and the National Telecommunications and Information Administration (NTIA) tried to find enough spectrum to support 3G without displacing or interfering with incumbent users.

The FCC, charged with coming up with potential 3G bandwidth in frequencies allocated to nonfederal users, in March designated the 2,500-to-2,690-MHz band as the best candidate for mobile use.

The NTIA, which hunted for spare spectrum in the frequencies assigned to federal users, including the Department of Defense (DOD), named the 1,710-to-1,850-MHz band its best choice. But both of these chunks of spectrum are already occupied by users ranging from school systems to myriad DOD ground and space communications systems. Neither the schools nor the DOD has shown much inclination to move or share bandwidth, for reasons of either economics or national security. To give itself more room to maneuver, the FCC earlier this month added several other bands (see chart at right) for possible 3G use.

Bruce Braciszewski, senior director for instructional television services at the San Diego County Office of Education, makes the economic argument easily. The spectrum he occupies in the Instructional Television Fixed Service (ITFS) frequencies within the 2,500-to-2,690-MHz band enables him to beam 20 digital channels of instructional TV all over the vast county. But it's also a revenue stream, Braciszewski said.

The channels in the ITFS band, he explained, are interleaved with commercial, fixed wireless channels used by carriers like Sprint PCS Group and WorldCom Inc. Those carriers have spent billions of dollars to acquire the fixed wireless spectrum to provide "last mile" broadband services for business and residential customers. Braciszewski estimated that an agreement with WorldCom has already funneled $6 million into the school system.

Monsignor Michael Dempsey, who runs the ITFS system serving the archdiocese of Brooklyn, N.Y., said his capacity-sharing agreement with WorldCom brings in $80,000 per month. That's equivalent to "a lot of collections," he said.

The Pentagon, meanwhile, insists that it can't shift frequencies without paying a high price. Rear Adm. Robert Nutwell, deputy assistant secretary of defense, estimated that it would cost $4.3 billion to reallocate all of the DOD's systems operating in the 1,710-to-1,850-MHz band to comparable spectrum — if it can be found. "We have not been very successful in identifying comparable spectrum," he said.

Bandwidth, Nutwell said, "is more important to us now than it has ever been in the past as our requirements increase to support network-centric warfare." The aim is to connect all the smart weapons, command and control, and intelligence systems on a battlefield with wireless data links.

Tom Wheeler, president of the Cellular Telecommunications and Internet Association, a mobile and wireless industry trade group in Washington, has equally strong views nn the spectrum reallocation process. In a letter to Powell in June, Wheeler called spectrum the "lifeblood" of his industry.

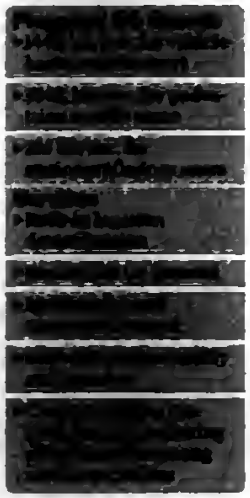
Since the 1,710-to-1,850-MHz band has already been selected by the International Telecommunication Union to support 3G services worldwide, Wheeler argues that the FCC needs to target it for 3G services and shift the DOD to other bands.

Analysts and spectrum consultants said all uf the parties involved in the battle need to compromise. Roger Schafer, a Valley Forge, Pa.-based telecommunications consultant at Schafer Technology Group, said a realistic assessment of spectrum needs by all the players would be a good start.

Since 10 MHz uf spectrum can easily support data speeds of 1.5M bit/sec., Schafer maintains that the nationwide rollout uf a 3G mobile data service (with projected speeds in the 144K to 384K bit/sec. range) can easily be supported by 30 of the 140 MHz of federal spectrum on the bargaining table. The DOD, Schafer said, could also meet its requirements with 30 MHz of spectrum. Neither federal nor commercial users effectively utilize their bandwidth, he said.

Speeds & Services

The FCC expects 3G wireless networks to provide data throughput at the speed of wired networks while offering unique services such as location-determination technology.



SOURCE: FEDERAL COMMUNICATIONS COMMISSION, WASHINGTON

Slicing the Spectrum Pie

The FCC and the National Telecommunications and Information Administration have sliced the 9-KHz to 300-GHz spectrum into 450 frequency bands, with every bit of space allocated for various uses, including the following:

AM broadcast radio	
TV channels 2-4	
TV channels 2-6	
FM radio	
TV channels 7-13	
TV channels 14-69	
Land mobile, including cellular phones	
Unlicensed use, including wireless LANs and cordless phones	
Government, including military	
Cellular phones	
Unlicensed wireless data and private microwave	
Cellular phones	
Cellular phones, satellite uplinks and TV remote trucks	
Fixed wireless	
Mobile satellite service, land mobile and fixed microwave	
Amateur radio and unlicensed wireless data	
Unlicensed use, including wireless LANs and cordless phones	
Instructional television and commercial, broadband fixed wireless	

*Identified as potential band to support high-speed, advanced mobile data services.
**On Aug. 9, the FCC added these bands for consideration for 3G use.

SOURCES: FEDERAL COMMUNICATIONS COMMISSION, WASHINGTON; NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION, WASHINGTON
(FREQUENCY CHART AVAILABLE FOR DOWNLOAD AT WWW.NTIA.DOC.GOV/OSMHOME/ALLOCHRT.HTML)

BRIEFS

Operator Challenges .Info Registrations

Afilias Ltd., which is managing the registry for the Internet's new .info top-level domain, said it plans to challenge some early domain name registrations because it suspects that they were submitted by cybersquatters. Newtown, Pa.-based Afilias blamed its inability to prescreen registrations on the lack of a global trademark database.

Domino Ties to IBM Software Tightened

Lotus Development Corp. said the next version of its Domino collaboration software, dubbed RNext, will provide deeper integration with parent company IBM's WebSphere application server and DB2 database. RNext is due out early next year. It will include the ability for Domino applications to use DB2 as their primary data source, according to Lotus.

Buy.com Layoff Follows Buyout . . .

Embattled Buy.com Inc., which had been the second-largest online retailer in the U.S., agreed to a $23 million buyout offer from its founder. The Aliso Viejo, Calif.-based company then laid off another 40% of its workers after reporting second-quarter revenue of $94.9 million, less than half its year-earlier total.

. . . While Egghead Files Chapter 11

Pioneering online retailer Egghead.com Inc. filed for Chapter 11 bankruptcy protection and announced a deal to sell most of its assets to Fry's Electronics, a San Jose-based retail chain. Menlo Park, Calif.-based Egghead.com, also laid off two-thirds of its remaining employees. The firm said the sale to Fry's should be completed next month.

Compaq Plots Course For Storage Products

Storage over IP, virtualization seen as key

BY LUCAS MEARIAN

Compaq Computer Corp. announced last week a course for its future storage products that will take it into the storage-over-IP arena and lead to the release of a series of hardware and software products targeted at both small businesses and Fortune 500 companies. Analysts say the strategy should position the company well to compete with rivals in the storage market.

The computer vendor said it plans to release six new products, including management software and a RAID device (see box). The releases will be an expansion of the company's Enterprise Network Storage Architecture, which was first released in 1998 and includes Fibre Channel-based storage-area network (SAN) and network-attached storage (NAS) products.

Analysts say Compaq's direction is impressive for a company that three years ago had virtually no presence in the enterprise storage sector.

Mark Lewis, vice president and general manager of the Enterprise Storage Group at Compaq, said the first product is a direct-attached storage to Fibre Channel SAN device, or DtS. Compaq said the device will allow customers with ProLiant servers or larger NAS arrays to pull their disk drives and mount them in a box that will automatically configure the data in a RAID format that can be accessed through a switched network.

Compaq spokesman Gary Wright said the new rack-mounted device is targeted at small-business or departmental users and is expected to ship within two to three months. He added that it would be competitively priced with the current RAID Array 4100 product.

Compaq said it's also building a series of products aimed at sending block-level data, such as that in a database, over IP. The products are based on emerging standards that would encapsulate Fibre Channel or SCSI commands and data and wrap them in IP packets for transport over long distances for mirroring, data backup and recovery purposes.

The IFCP, FCIP and iSCSI products are expected to be announced by the fourth quarter, Wright said.

Compaq said it will also offer an appliance that will allow servers to be configured to access either file-level or block-level data.

Lewis also announced that his group is shipping a new disk array that has Compaq's VersaStor software embedded in its controller, allowing an IT manager to gather storage space from various storage devices into one virtual pool that can then be allocated to various users.

Rob Johnson, an analyst at Englewood, Colo.-based Evaluator Group Inc., said he is impressed by Compaq's new focus on management software. In particular, Johnson said, Compaq's proposed virtual storage software, which would reside in the RAID box and outside of the data path, puts it ahead in a race involving players like IBM, Hewlett-Packard Co. and EMC Corp.

Each vendor has announced or already offers technology that will connect multivendor SANs and allow storage to be collected in a virtual pool. Compaq's VersaStor virtualization technology is expected to ship in October.

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Storage Strategy

Compaq's announcement includes six technologies that would expand its Enterprise Network Storage Architecture product line.

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- An appliance that connects all Compaq servers to a SAN
- Software products that will automate data security, protection and management policies (expected to ship in 2003)

Start-up Tool Measures Net Performance to Aid Routing

New device said to find fastest paths

BY JAMES COPE

Networking start-up RouteScience Technologies Inc. this week plans to announce a device that it says will let users analyze the performance of the Internet and then update their routers to send data to customers via the fastest paths.

Called PathControl, the device performs real-time analysis of the throughput between a company's network and Internet users. It will be priced between $140,000 and $250,000, depending on how it's configured, and is due for release in October, according to RouteScience CEO Herb Maden.

That sounds like a high price to pay, said Larry Rapagnani, assistant provost of information systems at the University of Notre Dame in South Bend, Ind. Rapagnani said he will believe San Mateo, Calif.-based RouteScience's claims of a performance increase of two to nine times when he sees it.

But Maden said the cost should be justified for financial services firms and other large users that hook up with customers over the Internet.

Susan Almeida, an analyst at Network Strategy Partners LLC in Boston, said performance on the Internet can already be enhanced by using technologies such as content caching tools. But, she added, the RouteScience device could help companies overcome the severe limitations of the Border Gateway Protocol (BGP), which routers use to connect different networks.

The BGP can't determine the shortest routes between endpoints and instead selects Internet paths in a somewhat arbitrary fashion, said Almeida. PathControl is a "very pragmatic" way to deal with that problem, she added.

But what would really be useful, Almeida said, is a fully intelligent routing protocol that could guarantee performance across the Internet, a development she described as being "still a long way off." ▶

BRIEFS

Operator Challenges .Info Registrations

Afilias Ltd., which is managing the registry for the Internet's new .info top-level domain, said it plans to challenge some early domain name registrations because it suspects that they were submitted by cybersquatters. Newtown, Pa.-based Afilias blamed its inability to prescreen registrations on the lack of a global trademark database.

Domino Ties to IBM Software Tightened

Lotus Development Corp. said the next version of its Domino collaboration software, dubbed RNext, will provide deeper integration with parent company IBM's WebSphere application server and DB2 database. RNext is due out early next year. It will include the ability for Domino applications to use DB2 as their primary data source, according to Lotus.

Buy.com Layoff Follows Buyout . . .

Embattled Buy.com Inc., which had been the second-largest online retailer to the U.S., agreed to a $23 million buyout offer from its founder. The Aliso Viejo, Calif.-based company then laid off another 40% of its workers after reporting second-quarter revenue of $94.9 million, less than half its year-earlier total.

. . . While Egghead Files Chapter 11

Pioneering online retailer Egghead.com Inc. filed for Chapter 11 bankruptcy protection and announced a deal to sell most of its assets to Fry's Electronics, a San Jose-based retail chain. Menlo Park, Calif.-based Egghead.com, also laid off two-thirds of its remaining employees. The firm said the sale to Fry's should be completed next month.

Compaq Plots Course For Storage Products

Storage over IP, virtualization seen as key

BY LUCAS MEARIAN

COMPAQ Computer Corp. announced last week a course for its future storage products that will take it into the storage-over-IP arena and lead to the release of a series of hardware and software products targeted at both small businesses and Fortune 500 companies. Analysts say the strategy should position the company well to compete with rivals in the storage market.

The computer vendor said it plans to release six new products, including management software and a RAID device (see box). The releases will be an expansion of the company's Enterprise Network Storage Architecture, which was first released in 1998 and includes Fibre Channel-based storage-area network (SAN) and network-attached storage (NAS) products.

Analysts say Compaq's direction is impressive for a company that three years ago had virtually no presence in the enterprise storage sector.

Mark Lewis, vice president and general manager of the Enterprise Storage Group at Compaq, said the first product is a direct-attached storage to Fibre Channel SAN device, or DtS. Compaq said the device will allow customers with ProLiant servers or larger NAS arrays to pull their disk drives and mount them in a box that will automatically configure the data in a RAID format that can be accessed through a switched network.

Compaq spokesman Gary Wright said the new rack-mounted device is targeted at small-business or departmental users and is expected to ship within two to three months. He added that it would be competitively priced with the current RAID Array 4100 product.

Compaq said it's also building a series of products aimed at sending block-level data, such as that in a database, over IP. The products are based on emerging standards that would encapsulate Fibre Channel or SCSI commands and data and wrap them in IP packets for transport over long distances for mirroring, data backup and recovery purposes.

The IFCP, FCIP and iSCSI products are expected to be announced by the fourth quarter, Wright said.

Compaq said it will also offer an appliance that will allow servers to be configured to access either file-level or block-level data.

Lewis also announced that his group is shipping a new disk array that has Compaq's VersaStor software embedded in its controller, allowing an IT manager to gather storage space from various storage devices into one virtual pool that can then be allocated to various users.

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Florida County Agencies Test Wireless Video Technology

But corporate uses are years off, uncertain

BY MATT HAMBLEN

Motorola Inc. is cooducting an ambitious wireless trial that lets public safety workers in a Florida county seod color videos to vehicles and communicate via wireless videocooferencing links, complete with voice and data support.

A spokesman for the Schaumburg, Ill.-based company said Motorola is honing the technology being used in Florida in the hope that it will eventually appeal to corporate users. But analysts say it could be years before real business applications are developed.

Motorola detailed its Greenbouse project this month at a conference for managers of public-safety communications systems in Salt Lake City. As part of the project, seven fire, police and emergency medical service vehicles in Pinellas County, Fla., have been outfitted with color touch-screen panels that are the size of a laptop computer.

Wheo the screens are fully functioning, police officers sbould be able to receive wireless video streams showing things snch as a robbery or footage of a missing person. Firefigbters and emergency personnel could potentially see building plans with the locations of bydrants and exits, said Marianne Pasha, a spokeswoman for the Pinellas County Sheriff's Office.

"With all the worries about school shootings, we have a database with maps of scbools and the building configurations," Pasha said.

But the big question for business users is how they might use wireless video deployments. Applications could include the disseminatioo of corporate announcements or training materials, said Stacey Wu, an analyst at Mobile Insights Inc. in Mountain View, Calif. For instance, a mechanic could get a quick tutorial in the field on how to install a part.

Wu said a few small vendors, including PacketVideo Corp. in San Diego and helloNetwork Inc. in New York, have talked about plans to market wireless video-streaming technology to corporate users. "But they haven't gotten any traction yet," she added.

A potential problem is that it would take bandwidth of at least 250K bit/sec. to produce passable video content, according to analysts. In the Florida trial, the Motorola wireless network offers 460K bit/sec. of bandwidth in the 700-MHz public safety band under an experimental license from the Federal Communications Commission.

"No private-sector company can get access to that [kind of] bandwidth unless they spend a lot or resort to a satellite network," said Ken Dulaney, an analyst at Gartner Inc. in Stamford, Conn. "I'd say there's no business interest in wireless video today."

Becky Diercks, an analyst at Cahners In-Stat Group in Newton, Mass., said network performance would likely be diminished in a real-world application with more users than the Florida project involves.

Motorola spokesman Steve Gorecki said there could be access to more bandwidth at lower costs once the FCC allocates spectrum in the 700-MHz band and sets standards for usage by wireless providers. But he added that it's uncertain when the allocation will occur for that band, which is now used by television channels.

BRIEFS

BEA Systems Lowers Revenue Forecast

Application server software vendor BEA Systems Inc. reported big increases in revenue and profits for its fiscal second quarter ended July 31. But San Jose-based BEA cut its forecast for the next six months due to expected weakness in IT spending. It said third-quarter revenue should be similar to the second-quarter level of $267.8 million.

J.D. Edwards Agrees To Buy CRM Vendor

Two weeks after warning of another loss, J.D. Edwards & Co. said it plans to buy Youcentric Inc., a maker of customer relationship management (CRM) software in Charlotte, N.C. The deal, valued at $86 million in cash and stock, is expected to be completed by November and will give Denver-based J.D. Edwards its first set of CRM applications.

Comdisco Reports $164M Q3 Loss

Comdisco Inc., which is operating under Chapter 11 bankruptcy protection, reported a $164 million net loss for its fiscal third quarter ended June 30. That's compared with year-earlier net income of $17 million. The Rosemont, Ill.-based IT leasing and services vendor said revenue fell from $910 million a year ago to $585 million.

Palm Buying Assets of Multimedia Developer

Palm Inc. announced plans to buy the assets of multimedia operating system developer Be Inc. in an $11 million stock-swap deal meant to boost the handheld computer maker's new stand-alone software unit. Santa Clara, Calif.-based Palm said the acquisition of Be, in Menlo Park, Calif., will help it add multimedia and Internet capabilities to the Palm OS operating system.

IBM Readies Modular Intel-Based Servers

With planned Summit chip set, users can link processor 'building blocks'

BY JAIKUMAR VIJAYAN

NEW SEAVER-LEVEL chip technology set for delivery by IBM in October could help users run enterprise applications on Intel Corp.-based systems in a more flexible and economic way than current approaches allow, analysts said.

Called Summit, the chip set uses a "building block" architecture that IBM said will let users buy four-processor Intel servers and then snap on up to 12 additional CPUs, plus other components, as their computing needs increase.

"It's the first truly modular approach in the Intel world," said Jonathan Eunice, an analyst at Illuminata Inc. in Nashua, N.H. "This is not meant to be a mainframe killer, but [it's] a very hefty midrange technology," he added.

Intel said it will use the chip set to test the enterprise-readiness of its upcoming 32-bit Xeon MP server processors and the next version of its 64-bit Itanium chip, which is due out next year.

Initially, IBM said, Summit will join four Xeon MP chips together into a basic unit that can be expanded to form either a single 16-processor system or up to four separate servers that share resources (see box).

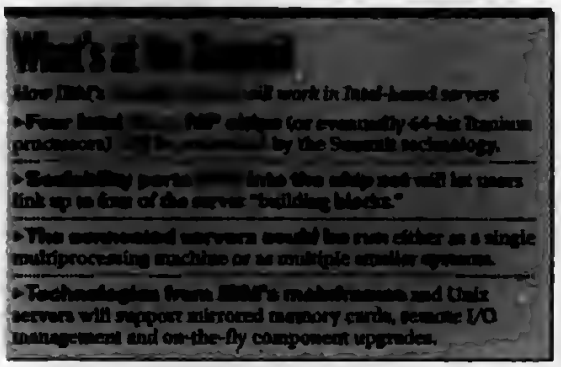
IBM officials said the first servers featuring the new technology should become available late this year, although Intel indicated that the Xeon MP chip isn't likely to be released until early next year.

Blue Bell, Pa.-based Unisys Corp. has been shipping a similar system for almost 18 months and said it has already installed more than 400 of its ES7000 servers, which cost up to $700,000 and support up to 32 processors in one cabinet.

Non-Uniform Memory Access (NUMA) servers sold by IBM and rivals such as Silicon Graphics Inc. and EMC Corp.'s Data General Corp. division also support far more Intel processors than Summit will accommodate.

But the three approaches differ, Eunice said. Unisys users pay for the modularity of the ES7000 upfront by buying a large box that they can then populate with additional resources, he said. And the greater scalability of NUMA boxes comes at a steeper initial cost, Eunice added. While IBM wouldn't comment on its pricing plans for Summit-equipped servers, Eunice said they should be less expensive and more flexible, but also less scalable, than the alternatives.

Summit will incorporate several technologies used now in IBM's mainframes and Unix servers. Such capabilities should help users better exploit the computing power of chips such as the Xeon MP, said Vernon Turner, an analyst at IDC in Framingham, Mass.


What's at the Summit
How IBM's [illegible] will work in Intel-based servers
►Four Intel [illegible] MP chips (or eventually 64-bit Itanium processors) [illegible] by the Summit technology.
►Scalability ports [illegible] chip set will let users link up to four of the server "building blocks."
►The connected servers could be run either as a single multiprocessing machine or as multiple smaller systems.
►Technologies from IBM's mainframes and Unix servers will support mirrored memory cards, remote I/O management and on-the-fly component upgrades.

AMD Loses IBM as a PC Chip Customer

Also faces price war with Intel

BY LINDA ROSENCRANCE

IBM has quietly dropped microprocessors made by Advanced Micro Devices Inc. from the PCs it sells in North America, dealing AMD a blow as it faces the possibility of an expanded price war with chip giant Intel Corp.

The disclosure of IBM's move coincided with the news that Intel will announce a 2-GHz Pentium 4 processor next week. Intel also is expected to make steep price cuts in its Pentium 4 line shortly, and analysts said the combination of events could make it even harder for AMD to get its devices into corporate PCs.

The loss of IBM's support "won't have a financial or material impact on AMD, but it will have a public relations effect," said Steve Kleynhans, an analyst at Stamford, Conn.-based Meta Group Inc.

Rob Enderle, an analyst at Giga Information Group Inc. in Cambridge, Mass., agreed that IBM's decision to drop AMD's Athlon processors from its NetVista line of consumer-oriented PCs creates "an image problem for AMD."

IBM had offered Sunnyvale, Calif.-based AMD's chips as a build-to-order option but discontinued that practice in May, except on PCs sold in Asia. IBM spokesman Ray Gorman confirmed the move last week and said the decision was made to cut costs and simplify the company's PC product line.

"Our major business customers prefer [Intel systems]," Gorman said. "Because the profit margin on PCs is so low, it didn't make sense to invest in two chip technologies." IBM will decide what to do in Asia at the end of the year, he added.

AMD spokesman Ward Tisdale said IBM's decision was "old news" and chalked it up to the computer maker's exit two years ago from the retail PC business in the U.S. The retail channel is a strong market for AMD's chips, but the company "is focused on growing its enterprise business," he said.

Earlier this mooth, Dan Niles, an analyst at Lehman Brothers Holdings Inc. in New York, said in a report that he expects Intel to "detonate a price bomb on AMD" by cutting prices on its Pentium 4 and Pentium III processors by as much as 50%.

An Intel spokeswoman declined to comment, except to say the 2-GHz Pentium 4 announcement won't coincide with any price cuts.

JUST THE FACTS

50-50 Split

Of the top four PC vendors, two offer AMD chips in systems and two don't.

IN THE AMD CAMP:
Compaq, Hewlett-Packard

INTEL-ONLY VENDORS: Dell, IBM

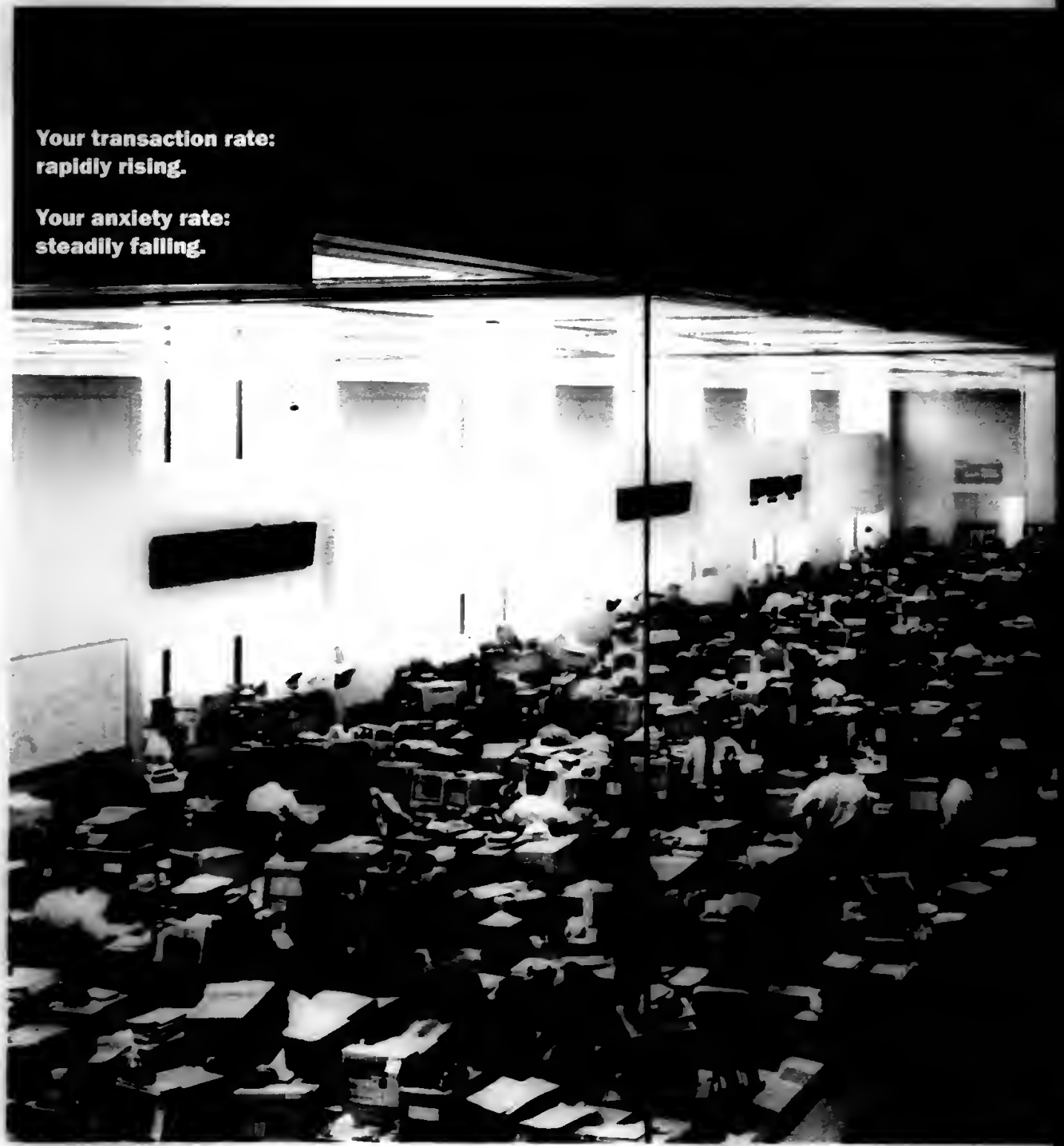
Material from the IDG News Service was used in this report.

Somebody's going to
from all this e-commerce
Will it be you?

sas

Your transaction rate:
rapidly rising.

Your anxiety rate:
steadily falling.



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[redacted] The company continues to grow and grow. And your system's transaction rates are climbing in lockstep with it. A big deal, for sure—but nothing to get anxious about. That's because SQL Server 2000 offers scalability for even the most demanding environments. So you know that no matter how much—or how fast—your system needs to expand, you'll have the tools to handle it.

Part of the flexible Microsoft .NET Enterprise Server family, SQL Server 2000 recently achieved 20,000 SAP Standard Sales and Distribution (SD) Application Benchmark Users with a response time of 1.91 seconds on a 32-processor Unisys ES7000 system running as the database server in a R/3 4.6C 3-Tier environment, surpassing a result achieved with Oracle 8.1 running on a Sun system with 64 processors.* In addition to world-class performance, SQL Server 2000 has price/performance numbers that are 2.5 times better than the closest competitor.† Add to that native XML support in SQL Server 2000 and you've got the database that's ready to handle Web-enabled enterprise applications far into the future.

SQL SERVER 2000 BENCHMARKS

Application/Workload	World Record Results
SAP R/3 Sales & Distribution	20,000 concurrent users
TPC-C	688,226 tpmC††
Peoplesoft 8 CRM	30,000 concurrent users
Peoplesoft Financials	12,000 concurrent users
J.D. Edwards OneWorld	4,500 concurrent users
Oracle	32,000 concurrent users

To get the full story on Microsoft SQL Server 2000 scalability, go to **microsoft.com/sql/worldrecord** Software for the Agile Business.

Microsoft

certified by SAP 6/12/2001. Unisys ES7000: 1.91 second Average Response Time (Dialog), 8,046,000 Dialog Steps/Hour 2,015,330 line items per hour SAP R/3 4.6C, 32x 900MHz Pentium III Xeon processor 12GB memory, DBMS: Windows 2000: SQL Server 2000 SP1. Visit www.sap.com/benchmark to link to benchmarking data. Solaris 8, Oracle 8.1.5. †Best SQL Server price/performance is Dell PowerEdge 6400: 20,332 tpmC, 6.46 $/tpmC, available 2/2/01, compared to best competitor (Sybase) is HP 9000 Model L2000: 22,423 tpmC, 16.43 $/tpmC, available 4/5/01. ††IBM e-server eSeries 370: 688,226 tpmC, 22.58 $/tpmC, available 5/31/01. TPC is a

PATRICIA KEEFE

The Past Is Prologue

A FUNNY THING HAPPENED after the PC revolution. The clunky beige box, which kicked off a downsizing revolution in computing that's reverberated across two decades, has in some ways brought us full circle back to the mainframe era.

For example, take operating systems (particularly Windows), which have gotten so bulked up that in some ways we seem to be moving back to the future. Microsoft has jammed whole classes of tools into its behemoth, which now weighs in at 42 million lines of code. Shades of mainframes.

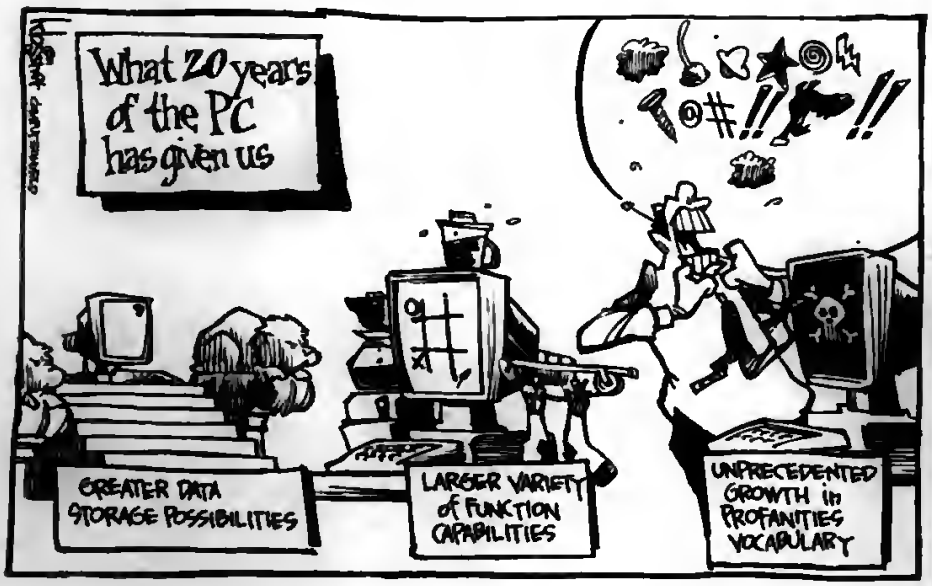
PATRICIA KEEFE is *Computerworld*'s editorial director. You can contact her at patricia_keefe@computerworld.com.

Desktop software has gone from a shrink-wrapped floppy disk to billions and billions of bits transmitted over the Web, paving the way for a return to software leasing, only this time we call it "rentals" from "service providers." Enterprise applications, anyone? Those same applications have moved off the local PC onto centrally located and sometimes remote application servers. Is anyone else thinking "dumb terminals"? The cost of intelligent PCs has certainly plummeted to that level.

The PC pulled data away from the sole ownership of IT, out of its imprisonment on big boxes in the data center, and it gave everyone personal, local access and control. Advances in mobile computing, however, are leading us right back to corporate and ISP management, as data, private e-mail boxes and records increasingly are locked up on remotely located servers, tightly guarded behind firewalls and other security systems.

The PC and its laptop and handheld spin-offs have freed workers from the office, allowing us to be more productive on the road and to work from home, escaping the confines of the corporate cube. The downside, of course, is that we've also managed to lose personal downtime along the way, and now many of us are unable to escape the confines of round-the-clock workdays.

Today, we're witnessing the beginnings of the wireless, embedded and ubiquitous computing revolutions. Each will creep into the consciousness of IT much as the PC did. Only this time, if we learn from the last installment of computing evolution, we'll be one step ahead of the game, taking these advancements seriously and planning how to grow with and manage these tools and their users back to the inevitable future. ◗


What 20 years of the PC has given us
@#!!!!
GREATER DATA STORAGE POSSIBILITIES
LARGER VARIETY of FUNKTION CAPABILITIES
UNPRECEDENTED GROWTH in PROFANITIES VOCABULARY

PIMM FOX

South Carolina Law Puts IT in Disturbing Role

AS AN IT STAFFER, it may be time to add a yellow sticky to your monitor. No, not another password, but the phone number of your company's in-house lawyer. Why? Because if a newSouth Carolina law gathers steam in other states, you just might be tapped to monitor whether your fellow employees are looking at child pornography on their computers.

The recent case in which the Texas owners of a child pornography site (officials claim the company had 250,000 subscribers) received lengthy jail time should underscore that online child pornography is a serious — and traceable — crime. In addition, 100 subscribers were arrested. The most we can hope for is that they accessed the site from home computers rather than from work. That's because the new South Carolina law stipulates that IT pros who see child porn on an employee's computer must report the name and address of the owner or user.

PIMM FOX is *Computerworld*'s West Coast bureau chief. Contact him at pimm_fox@computerworld.com.

But the law begs the question: Whose responsibility is it, anyway?

Are IT professionals like bartenders, who must watch the behavior of the people they're serving?

Sonia Arrison, director of the Center for Freedom & Technology in San Francisco, says it doesn't make sense to turn IT folks into ethics monitors. "Going around looking at people's hard drives shouldn't be the responsibility of IT personnel," she says. "HR, lawyers or people who know the law would be better."

Most IT personnel are employees, not officers of a company, and they're rarely covered by corporate insurance. What happens if someone mistakenly reports a worker and is sued for defamation? Will IT departments have lawyers to determine what's permissible on computers? If you outsource IT functions, what happens if an employee's name appears on a third-party computer on which illegal material is found?

Many Web sites grab names to bolster marketing efforts. What if your name, along with a com-

Quick Link For more *Computerworld* columnists and links to archives of previous columns, head to: www.computerworld.com/q?q1000

pany e-mail address, pops up and is found by law enforcement officials on a database of a pornography site? Is it the IT department's job to clear your name if the FBI comes calling?

Many banks and investment firms have surveillance software to monitor e-mail and where employees go online. But the South Carolina law places the onus on geeks to sniff out perverts.

IT workers shouldn't have to police other people's computers. They aren't trained to enforce the law, they don't have insurance protection if they make mistakes, and they won't appreciate being the thought police.

Finally, IT workers shouldn't be held responsible for other people's illegal behavior. Imagine being prosecuted as an accessory because you knew about child porn on a computer but didn't want to be a rat.

JOHN GANTZ

Looking Ahead By Looking Back: IT in the Future

CLIENT/SERVER IS A HOAX. Y2k won't amount to much. The Microsoft antitrust case will go nowhere for years. IT departments won't ever effectively manage handheld computers. The Web will be bigger than anyone thinks. The Unix consortium won't make a difference.

These are a few of the themes I've brought to the table as a *Computerworld* columnist. For this, my last column, I've reviewed some of those I wrote over the course of nearly nine years to see if I can find any messages in the past about the future.

JOHN GANTZ is a senior vice president at IDC in Framingham, Mass. Contact him at jgantz@idc.com.

When I started this column, the industry was in a downturn, Windows NT had yet to hit the market, and Digital was the No. 2 computer company. The Apple Newton was the prototypical PDA, and the Internet was still mainly a messaging and file-transfer network used by academics.

Today, the industry is in a downturn. Digital, the company, is gone, and handheld computers are almost as numerous as PCs. The Internet has created, if not a whole new economy, at least a whole slew of new companies, new lingo and a new mode of communication and information sharing for a half-billion people.

In hindsight, my best work has been in debunking. My general philosophy that anything that requires major changes in behavior has a dim future has generally been proved correct, whether it's the adoption of object-oriented programming techniques, computer-aided software engineering tools or getting scores of companies to agree on a protocol or a standard in advance. I have been most wrong when I've looked for a radical restructuring of the IT profession.

Think back. Before the PC, the IT profession spent a lot of time trying to foster what it called "end-user computing." Once the PC went mainstream, the profession pretty much tried to *prevent* end-user computing. But after the dust settled, the IT profession had changed from servicing machines to servicing internal customers. The Internet has upped the stakes, but the basic job description holds, even if many of the tools have changed.

I once thought that the IT profession would disappear, replaced by individuals performing the function on a part-time basis and fragmented into specialties within business units. But it has actually grown more powerful. If you add to the IT profession all those systems designers at Microsoft and Nintendo, those special-effects technicians in the entertainment world, genomic researchers at Genzyme and Pfizer, technicians writing software for laser eye surgery and so on, you end up with what, in fact, might be one of the most influential professions in the world.

So, I'll go back to one of my time-honored themes: Be ready for the spotlight. If you thought your profession was front and center during Y2k, just wait. IT may be best known for its errors, such as the bugs that shut down stock trading or air traffic control and the Love Bug-like viruses that spread across the Internet and the news pages. But IT truly makes the world go around. You'll need the skills and demeanor to handle the responsibility. Organizations will need to operate with military precision, which means that, except for a few designers, you'll need to work from common procedures, practices, tools and platforms. You'll have a more important role but, at the same time, less individual freedom. On the other hand, you'll be right in the nerve center of your company. What better place to be than running the ship?

READERS' LETTERS

The PC at 20

IN YOUR COVERAGE of the IBM PC's 20th anniversary ["Crashing the Party," Cover Story, Aug. 13], I was surprised to see only minimal reference to Moore's Law. Bill Gates' biggest disappointment with the PC, it seems, is the discontinuance of hardware miracles. I passively agreed, having already been lulled into thinking that it was time, after so many decades, to give up the ancient prophecies whose beginnings, I assumed, were already shrouded in mythology. I was ready to congratulate your editorial self-control when I saw Steve Ulfelder's article "Transistor Triumphs" [Future Watch]. This article delivered excellent material, very well balanced and to the point. I reconsidered and was even moved to research Gordon Moore's original statements (1965) and his own take on this "law." Now I'm all the more impressed at his ability to extrapolate from so few data points. If you'll pardon the transistor-speak, I flip-flopped.

Greg Schroeder
Web developer
New York

FUNCTIONALITY vs. reliability? Who feeds you this nonsense? Unix systems run for months on end and have been that reliable for 20 years, even when running on standard PC hardware as old as 80386s. Please don't give Microsoft another fig leaf ("functionality") to hide behind.

Andrew D. Wolfe Jr.
Applications architect
Oracle Corp.
Burlington, Mass.

The Human Element

I AGREE WITH Maryfran Johnson that people can't successfully be separated from technology ["Zero Tolerance," News Opinion, Aug. 6]. That's too often what happens, causing horrible implementation problems. Please know that while there are apparently people outraged by your articles, there are plenty of others who enjoy reading them.

Lisa Schnettler
Business systems analyst
Jersey City, N.J.

YOUR EDITORIAL hints at far too many wrong connotations. Zero tolerance connotes no tolerance for homosexuals when in reality there is no tolerance for the irrelevant reporting of such in this newspaper. I stand on the same ground as your other bigoted, phobic readers and call for an end to such IT-irrelevant reporting and editorializing.

Rodney Johnson
Montrose, Colo.

An Anti-UCITA Hero

NOW THAT UCITA appears to be headed back to the drawing board [News, Aug. 6] and before it fades from memory, we need to express our enormous debt of gratitude to testing expert and attorney Cem Kaner. Often seeming to be the only person standing up for the rest of us, Cem devoted a huge amount of his own time attending the many UCITA hearings and telling anyone who would listen about the dangers of the proposed legislation. Thanks, Cem.

Robin F. Goldsmith
President
Go Pro Management Inc.
Needham, Mass.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. Internet: letters@computerworld.com. Include an address and phone number for immediate verification.

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DON TAPSCOTT

Help Firms Work With Suppliers

LAST WEEK, I wrote why corporate success will hinge on the ability of companies to develop deeper relationships with their customers ["Use the Net to Invest in Relationships," Page 28]. This will also be true of their relationsbips with suppliers.

The most effective managers will be adept at marshaling not only the skills and energies of their own employees, but also the resources of other companies.

The concept of "relationship capital" is fast gaining credence because of the impact the Internet has on corporate architecture. In the industrial economy, tbe basic building block of economic activity was the vertically integrated corporation. This type of company performed virtually every function in-house because the cost, risk and hassle of contracting or partnering with outside firms outweighed the benefits.

DON TAPSCOTT is president of New Paradigm Learning Corp. and co-author of *Digital Capital: Harnessing the Power of Business Webs* (Harvard Business School Press, 2000). Contact him at dtapscott@digitalnetlight.com.

When these companies talked about relationships, they almost always meant *within* the firm. There were reporting relationships and dotted-line relationships. Project teams had "members" who collaborated closely. These relationships were often carefully defined; you were part of the "human resource" with roles, responsibilities, reward systems and the like.

Sometimes the companies would talk about their relationships with customers or suppliers, but the expression was virtually meaningless. There was a supply chain, but more often than not, it was an adversarial relationship.

But in the era of the Internet, relationships take on much greater importance and are becoming key assets, much like buildings and factories. Because the Net slashes the cost of sharing knowledge, collaborating and meshing business processes among corporations, companies can now focus on their core competencies and partner or outsource to do the rest. Together, in industry after industry, teams of specialized companies working together are proving more supple, innovative, cost-efficient and profitable than their traditionally vertically integrated competitors.

I've recently worked with Tom Siebel, chairman and CEO of Siebel Systems. One of the fastest-growing U.S. companies, Siebel's revenue soared more than 1,400% in just three years, from $118 million in 1997 to $1.8 billion last year. The relatively small core company creates software products and orchestrates a team of more than 750 consulting companies, tecbnology providers, implementers, suppliers and vendors to take its products to the global marketplace. "We only bave 8,000 people on our payroll, but more than 30,000 people work for us," says Siebel.

The company is often referred to as the market leader in customer relationship management software, but Siebel says the company's scope is now much broader. "We are privileged to be the New Economy's prime enabler of 'relationship capital management,'" he says. "The models for business success today are not hermetically sealed firms but dynamically evolving networks of cooperating actors."

Such arrangements are a new and formidable challenge for managers. The business press constantly chronicles partnerships that begin optimistically and witb great fanfare but subsequently collapse because the companies involved — both often very good at what they do — are simply unable to function together.

In the new business environment, tbe ability to accumulate and gain leveraged returns oo relationship capital plays a key role in driving business performance and sharebolder value. ◗

WILLIAM M. ULRICH

Plan for Transition To Web Services

INFORMATION TECHNOLOGY is leaving the era of custom coding and entering the era of Web services.

If that doesn't seem like a big deal, consider this: Until Ford exploited the assembly-line model to mass-produce cars, most people didn't own one. Web services will bave as profound an impact on information management as the assembly line had on the auto industry. IT will be able to deliver more services of greater value more quickly and cost-effectively — if it plans accordingly.

WILLIAM M. ULRICH is a management consultant and president of Tactical Strategy Group Inc. Contact him through www.systemstransformation.com.

Web services establish an environment in whicb developers build systems using reusable components, in stark contrast to writing systems from scratch. Components are self-contained units of business logic and data that can be assembled into applications. Components' owners maintain their fuoctionality. The components are accessible in-house or from external sources via the Web.

A Web services environment streamlines the time it takes to deliver new business capabilities, standardizes results and lowers application management costs. The speed and reliability associated with using standardized components to process many functions will exponentially increase IT's value to a business.

Yet transforming IT from a handcrafted environment to a Web services model is a huge challenge that will take years because IT has focused on handcrafted applications for decades. But with requisite tools and architectures beginning to take hold, companies need to deploy a Web services strategy that recognizes the impact of Web services and drives the needed projects to make it a reality.

Basic support for Web services is emerging. Various vendors offer development tools and methods to facilitate the creation of components and the distribution of components and services across Web-enabled architectures.

But deploying these architectures is just the first step toward Web services. Companies must also change the way they address collaboration, governance and legacy systems — and this won't happen overnight.

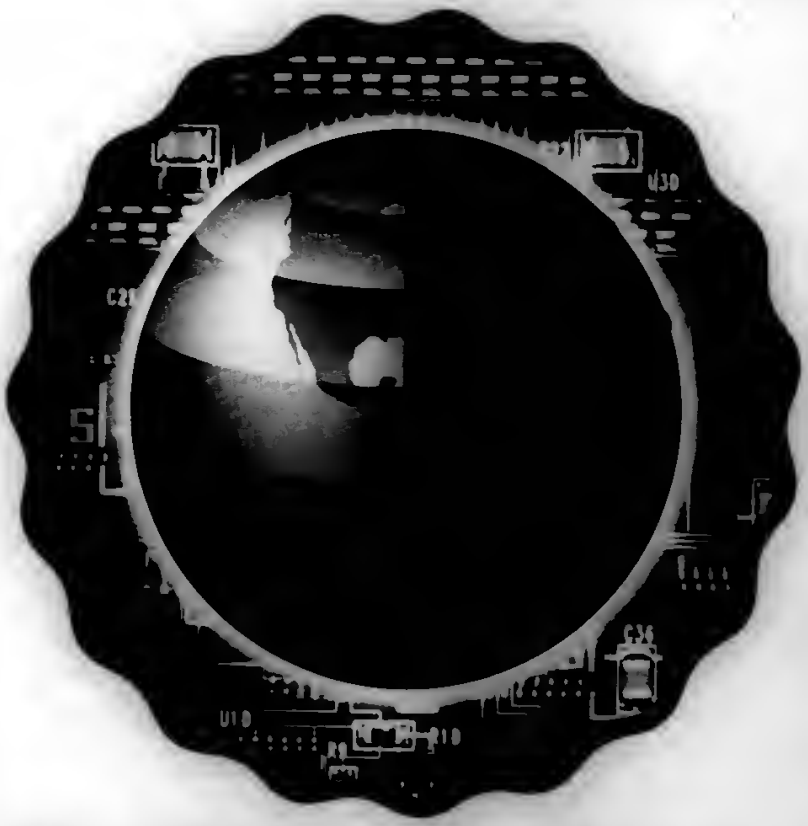
Collaboration facilitates the reuse of components, but it's rare. For example, one company had several development teams building components, none of which would share its components with the other teams. This is the wrong approach. A company's executive team must establish a collaborative work environment and build it into the corporate culture and governance structure. This may mean changing how IT works with business units, bow the units work with ooe another and how a company works with business partners.

Legacy systems are another roadblock. Hundreds of billions of lines of legacy code perform key business functions, so identifying, extracting, consolidating and redeploying them are prerequisites to building a viable set of reusable components. Legacy componentization will let many industries break free of the legacy application architectures that limit new business opportunities.

Imagine the benefits a phone company could realize if it were to capture and consolidate business and data intelligence from redundant billing systems and redeploy this functionality as reusable components. Developers could deploy valuable business functionality in new, Web-enabled applications and provide customers with Web access to billing and related information. Entire service departments, responsible for, say, customer inquiries, could be streamlined or put to better use.

Web services can take businesses to new levels of productivity, even when deployed internally as a first step. But this will occur only if IT pursues a systematic approach to get there. ◗

White Paper



The Global Challenges of Storage Networks

It may take a herculean effort, but the benefits make it worthwhile

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The Global Challenges of Storage Networks

It may take a herculean effort, but the benefits make it worthwhile

If you think managing the design and implementation of a storage area network (SAN) for your data center is a challenge, imagine the added challenges associated with these tasks when the scales have been expanded to include the total global enterprise. For those who are making recommendations or decisions on a global basis, you must consider regional and national differences in service level agreements (SLAs) and supplier support infrastructures. In addition, you must address differences in the size and quality of your regional infrastructure.

By John McArthur
Vice President
Worldwide Storage
Research
IDC

Regions will differ in staffing costs, the availability of qualified staff and training, storage growth rates, the types of applications in use, the operating systems and their versions, preferred hardware platforms and the deployment rate of new applications. It is this wide range of differences that has caused many to consider standardizing on a common SAN infrastructure.

For sure, however, one size does not fit all.

Many IT managers will be reluctant to accept the mandate from some distant corporate office. Corporate recommendations are most likely to be accepted when corporate IT decision-makers have been sensitive to the requirements of the region and the proposed solution addresses local requirements and concerns. Imagine that you are managing a regional data center in a locality far from the corporate office. Imagine that the IT director in the corporate office has chosen a new way of provisioning and managing storage. What are the chances that everyone in the company will cooperate fully in the implementation and will embrace this new technology, especially those who were not involved in designing the solution?

One way to solve this problem is to use a set of tools to design and implement a storage solution that can meet the global demands of the corporation as well as the unique requirements of every region around the globe. There is one problem here, these tools are not found in most organizations.

Defining the Business Goal

Before initiating any major project, such as a global SAN, it is critical to articulate the goal. The goal should be expressed in terms of business measures, not just IT and operational measures. The measure of success should be grounded in financial metrics as well.

For a company considering a global SAN, the project should begin with a thorough assessment of the current environment and the costs associated with this environment. Too often,

individuals have some basic belief about inefficiencies or risks associated with the current infrastructure, but rely mostly on anecdotes, lacking any hard evidence to confirm their belief. This is not sufficient to justify the time, effort and expense associated with replacing the current storage infrastructure.

One commonly occurring complaint among SAN solution suppliers is that they are frequently asked to respond to a technical specification rather than being asked to solve a business challenge.

These specifications are another reason why the storage arena has such varied approaches and more than one way to create a solution. This is why a request for proposal (RFP) that does not begin with a statement of the business challenge is an inferior RFP. Business challenges can typically be reduced to one or more of the following three measures of business success: increased revenue, reduced cost and decreased risk. Take a look at the following three examples.

1. Increase revenue through acquisitions

Particularly during this period of economic uncertainty, companies will look to acquisitions as a way to grow revenue. Stronger companies will buy weaker competitors and will use periods of imbalance, for example, the current economic slowdown in the U.S., to enter new markets. A flexible and scalable infrastructure, such as an enterprise-wide SAN, is a key component of a global infrastructure that can react to and absorb the increased IT demands caused by an acquisition. For example, a SAN-supported infrastructure may provide data migration and replication tools that enable the rapid incorporation of acquired data and applications into the existing environment.

2. Reduce costs through consolidation

Companies that are growing, and particularly those companies that are growing through acquisition, are looking to SAN solutions to reduce incremental support costs. The business goal is to create a more flexible

and efficient operation that drives cost out of services. Companies in this mode are focused on the ability to add additional locations and/or services without increasing headcount.

3. Reduce risk with application availability

Business goals that look to reducing risk are often tied to application availability. This can be seen, for example, when applications are supporting patient care systems of healthcare providers, financial trading systems and critical utility infrastructures such as communications, government security and law enforcement systems. In these environments, the business goal is to continuously provide service without interruption. From an IT perspective, this means that the storage solution may require cluster support, non-disruptive maintenance for break/fix, software and hardware upgrades. In addition, non-disruptive data migration is a key factor in the movement of data from aging hardware to newer technology. Data is typically written to disk in multiple locations and to multiple devices. This is a key element in minimizing the impact of a data center loss.

Data distribution is also a key component in improving the quality of service associated with distributed Internet server installations.

By placing multiple copies of data close to its places of most frequent use, companies can improve the user experience dramatically. This is especially important in the areas of graphics content and streaming media.

For other companies, business goals are often tied to application recoverability. For these companies, applications are supporting important, but less critical services. Examples can be found within power utility services or government financial offices. In these situations, application downtime, while disruptive, is rarely life-threatening or financially devastating. Recoverability in these situations is typically measured in hours or days and application availability requirements are measured against the cost of providing continuous availability.

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On the grand scale there are "intents." An intent is a function conducted by all individuals, all applications and all computer systems. Intents are the basic functions associated with any system. Communication is an intent. Processing (or thinking) is an intent. Storage is an intent — it's something we all must do.

What matters less is the technology used to satisfy the intent. What matters most is that the intent will survive regardless of the other activities of a corporation and regardless of changes in technologies.

Evaluating the Stakeholders

Since everyone is storing information, efforts to standardize on storage architectures will inevitably force you to confront the stakeholders. Stakeholders are those who are affected by, influenced by or have the ability to affect, influence or control a decision. In the case of SANs, the stakeholders fall into four broad categories, including financial, business unit, operations and suppliers (see chart). Here is an explanation of these four categories:

1. Financial

Financial stakeholders include the CFO, the business unit comptroller and the comptroller or financial manager within the IT department. The issues that will be raised by these stakeholders can significantly delay the implementation of a SAN. For example, the issues associated with budgets may take a full 12 months, or until the next budget period, to resolve. If these issues are not raised and addressed at the beginning of a SAN project, they can bring the best designed SAN implementation project to a halt.

The CFO is typically responsible for maintaining standards for the return on corporate investments, whether those investments are financial or infrastructure investments. The CFO has the ability to slow the rate of new technology adoption, particularly during times of slow or negative growth, by demanding that initiatives with a high upfront capital cost provide a higher return on invested capital. Thus the project manager for a SAN implementation must be able to provide a total cost of ownership (TCO) analysis or return on investment (ROI) justification for any SAN deployment. Initial capital costs for SAN deployments will almost certainly be greater than the alternatives. Therefore, TCO analysis usually extends to the impact on personnel costs, software licenses and service expenses. ROI justification must include an analysis of the financial benefits associated with the SAN deployment's impact on such metrics as application availability, application recovery time and the time to deploy new applications.

The business unit comptroller is typically concerned with staying within operating and capital budget constraints and meeting profit targets. The business unit comptroller has the ability to influence a SAN decision, because most SAN implementations typically involve the adoption of a shared infrastructure. Particularly during the early days of client/server computing, business units created their own mini-IT organizations to support applications that were not deemed important enough to be supported by the central IT organization. As they migrate to a shared infrastructure inherent in most SAN implementations, the business unit comptroller must address the transfer of capital budget and operating expense from one P&L to another. In turn, they must be satisfied that the chargeback system associated with the SAN implementation meets their standards for fairness.

The IT financial manager or comptroller will also be focused on issues of budget transfer, chargeback systems and the total expense associated

The Stakeholders

The following groups make up the individuals who are Networked Storage Stakeholders

Financial
- CFO
- Business unit comptroller
- IT management

Business Unit
- Line of business
- E-business executive
- Customers

Operations
- Facilities management
- Human resources
- Database administrator
- Application developers
- Data center operations

Suppliers
- Servers
- Software
- Storage

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The IT financial manager or comptroller will also be focused on issues of budget transfer, chargeback systems and the total expense associated

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with a SAN deployment. The chargeback system is often one of the last issues to be addressed in a SAN deployment, but from a financial perspective it is one of the most difficult.

Typically only one business unit or division will bear the cost of a standalone solution. Thus, simple methods for cost allocation can be applied.

With a shared infrastructure, usage rates, availability requirements and growth may vary widely among applications. Not all applications will share equally in the SAN solution. Therefore, business units will typically demand that some fair method of chargeback be developed, that is based upon usage, growth and availability requirements. These same users may also expect that the cost of this shared infrastructure, including the cost of the chargeback system, be less than the cost that was previously borne with a standalone solution.

2. Business unit

These stakeholders include the business unit managers responsible for delivering new products and services, maintaining good customer relationships and driving sales. Business units not only drive the growth rate in existing software applications, but also the requirements for new software applications. It has been the business units, for example, that have been behind the implementation of customer relationship management systems and front office automation. In larger organizations, it was the business unit, not the corporate IT department, that drove the corporation to e-mail and the Internet.

Over the years, business units have built their own mini-IT departments. The purpose of this was to experiment with new technology, respond more quickly to customer demands and to work around a centralized IT department that appeared either too costly or too disconnected with the business units' priorities.

Applications and infrastructures that were built within the business units often lack the scalability and availability features of their data center counterparts. But in the early days of rapid application development and experimentation, these factors were less important. As the applications become more strategic, however, the demand for higher availability and scalability causes business units to "throw the applications over the wall" to the IT department. As part of passing responsibility for an application to the IT department for ongoing service and support, the business unit will typically demand a service-level agreement (SLA).

IT directors often fear the unknown. Previous bad experience with "new" technology that was over-hyped and under-delivered lead many to cling to old and trusted methods.

The SLA usually focuses on meeting application availability and performance standards, while ignoring the challenges that are inherent in a rapidly growing application. The SLA is often one of the drivers in a SAN deployment, ensuring that the IT department continues to meet application availability requirements as the application continues to grow in size and complexity.

3. Operations

IT directors often fear the unknown. Previous bad experiences with "new" technology that was over-hyped and under-delivered lead many to cling to old and trusted methods. High initial costs, concerns with changing standards, the lack of component interoperability, the potential for rapid hardware obsolescence, software compatibility issues and recent shifts in supplier focus have left them waiting until these new storage solutions are more broadly adopted.

IT organizations in large, global companies have become increasingly organized in areas of expertise and specialization. Each area may include IT operations, hardware capacity planning and performance management, application development and database administration, application availability and disaster recovery, network management and system software support.

Because an enterprise-wide SAN touches so many of these constituents, it is critical that their interests be considered and addressed by the SAN project manager.

When IT departments within

business units were developing and deploying new client/server applications, the application, server, storage and network decisions were tightly integrated as part of a bundled solution. As these applications increased in size and complexity and were turned over to corporate IT to manage, the application decisions and hardware decisions became increasingly disassociated. By the mid 90s, companies were making storage decisions independent of server decisions. As this happened, the IT groups developed into a food chain of service providers. The server group became a service provider to the application group, but the storage group became a service provider to the server group. As storage is increasingly networked, the network group may become a service provider to the storage group.

With no single point of control and every group acting as a service provider to another, it is easy to see how a SAN deployment might become a contentious issue unless these stakeholders are incorporated in the decision-making process.

4. Suppliers

Whether it is the business unit that previously had responsibility for an application or it is one of the IT expertise areas mentioned in the preceding section, it is likely that each stakeholder has at least one trusted supplier relationship. These suppliers, as key contributors to the success of each of the stakeholders, will almost certainly have influence over the ultimate SAN decision. Storage management software suppliers will attempt to influence system software support staff, server and storage hardware suppliers will attempt to influence capacity planning and performance management staff, and channel extension and SAN infrastructure suppliers will attempt to influence network administrators. Consideration for existing relationships, contracts and services must be given in order to ensure that the SAN implementation will proceed without interference and delays.

Assessing the Environment

The following section explains three ways of assessing the current environments of distributed data centers: the infrastructure survey, the efficiency and availability assessment and the groupware approach to determining best practices.

1. Infrastructure survey

A typical approach to the assessment of requirements would be to conduct a survey of data center managers in each of the locations. Questions in the survey might ask for a detailed description of the current data center storage environment, including the current suppliers and the storage architecture employed, whether SAN, network-attached storage (NAS), direct attached storage (DAS) or internal storage. The survey should determine the amount of installed gigabytes, data protection levels, connectivity, platform and operating system support and types of applications supported. In addition, the survey would typically address growth rate expectations for current applications and expectations for new applications that might be deployed. The survey should determine the demand for increased data replication (mirroring, local copies and extended distance remote copies), the physical constraints of the current data center, as well as limitations on power and cooling. A more thorough assessment would also require a description of the backup solution (tape drives and libraries), the tape rotation cycle, application recovery requirements, archival requirements and any storage resource management software, hierarchical storage management (HSM)

tools and backup and recovery software employed.

One major flaw in this approach is that there will likely be no reliable assessment to the relative merits of each of the stated requirements. In addition, if a central authority, geographically distant from the data center, is given the task of assessing the relative merits of any stated requirement, the central authority does so without the benefit of local knowledge that was captured in the survey.

In times of tight budget control, projects that employ a single survey to assess the current environment and future requirements are more likely to reduce the recommended solution to the lowest common denominator.

Another possibility, when financial factors are not considered, is the specification will become the sum of all of the regional requirements or the greatest common multiple.

In order to avoid these scenarios, IDC recommends that companies assess the effect on financial efficiency and data availability delivered by various solutions.

2. Efficiency and availability assessment

An efficiency assessment will include all of the questions found in the infrastructure survey, but will also ask about financial details. These will include information on the capital cost and expense associated with the storage hardware and software, the age of the current equipment and the time until the end of the lease or depreciation schedule, or the license term in the case of software. The expense numbers can be used to determine a software and hardware price per MB. The capital cost and depreciation schedules are critical to determining whether the price is a function of the type of equipment installed or the age of the equipment. Rapidly declining hardware prices combined with very fast TB growth rates could mask the fact a data center was purchasing a costly solution.

Today's high-end storage solutions are increasingly designed to provide consistent, predictable performance and data availability even in the event of a component failure.

Current staffing requirements should also be assessed and appropriate metrics computed to determine the relative efficiency of each of the data centers. One metric that works for disk storage is TB/Storage Manager. This metric is computed by dividing the total number of installed TB by the number of IT staff required to manage the installation, maintenance and problem resolution and capacity planning and performance management of the storage. These numbers can range widely from a few TB to tens of TB. A similar metric can be computed for tape storage as well. One metric that IDC has found in use is tape cartridges per tape operations staff. Using local costs per employee, you can also derive a personnel price per MB or price per tape cartridge.

In order to reach beyond pure hardware, software and personnel costs, the assessment can also address the availability characteristics of the current storage infrastructure. In the case of disk storage, this can be expressed in terms of downtime, measured in minutes or hours, or incidents, the frequency of downtime events. Availability characteristics can also be expressed in terms of severity (data loss or no data loss) and degraded performance, for example, the data may have been available, but the performance was degraded and did not meet service levels. In the case of tape and tape automation, these availability characteristics can be expressed in terms of drive or library downtime as well as data checks on individual tape cartridges.

At this point, it is worth expressing one word of caution relative to availability. In the age of increased virtualization, where data is no longer associated with any single physical location, but rather a logical location and is not transferred over any single physical path, but rather a logical path, it is no longer valid to view storage availability in terms of component failure. Today's high-end storage solutions are increasingly designed to provide consistent, predictable performance and data availability even in the event of a component failure.

A company that uses the approach outlined above will end up with a

detailed set of requirements for each of the data centers. In addition, the project manager will be able to determine the cost efficiency and impact on availability for each of the strategies employed across the locations. The limiting factor in this approach is that the perspective gained comes from a single set of constituents: the data center managers. As discussed above, there are numerous stakeholders in each storage decision. Failure to incorporate other stakeholder concerns may yield a result that is expensive, difficult to support, unable to meet service levels or incapable of scaling in capacity, performance or availability.

3. A groupware approach to determining requirements and best practices

For large projects, and especially geographically distributed projects such as a global SAN deployment, IDC advocates a groupware approach to assessing the environment, determining best practices, and developing the list of requirements. Using a groupware approach, multiple stakeholders in each location can simultaneously provide input on storage requirements. With added input, issues regarding infrastructure hardware and software costs can be more effectively balanced against user benefits and labor savings. Using groupware, the ability to contribute is time-of-day and time-zone independent. Unlike a one-time survey, groupware provides an easy mechanism for correcting errors or incorporating the latest information. More important is the ability of a groupware approach to share the collective knowledge, best practices and lessons learned among the collective contributors. Each contributor can see the responses of other contributors, and can request additional information if the responses are not clear, or provide a counterpoint to other contributors' statements on any given question. The result from such an approach is a collection of knowledge, expectations and requirements that represents and addresses the needs of multiple constituents across multiple locations.

Qualifying Suppliers

Developing a global, enterprise-wide SAN requirements document is an enormous task in its own right. Selecting prospective suppliers can be just as challenging. New SAN installations may require new disk storage, new tape and tape automation solutions, new network infrastructure, new or different storage management software, as well as training. Few IT departments today have the in-house expertise to act in the role of systems integrator for a SAN solution. That, however, is precisely what is required. The job of the systems integrator becomes increasingly difficult in a global SAN implementation, since they must determine the correct components and suppliers for each region.

Even for some of the largest suppliers of SAN solutions, SAN competency may vary widely between regions. In addition, suppliers may deliver solutions largely in a direct-sales-and-support fashion in one region, while relying almost exclusively on resellers in another. What is required for global SAN deployments is a central coordinating supplier with global reach and the technical expertise to oversee all aspects of the installation, including the ability to coordinate the efforts of multiple

Business goals drive SANs

The following includes three good examples of business goals used by companies that drove recent SAN installations:

Business goal of a healthcare provider:
To reduce risk, ensuring uninterrupted, high-quality service to patients, by providing a continuous operating environment and a consistent level of performance for all critical patient-care-related applications, even in the event of the loss of any single data center.

Business goal of a retail bank:
To reduce risk, by protecting the assets and information of customers, through the provision of a secure IT infrastructure.

Business goal of a service bureau for resort operators:
To maximize assets and increase margins, by enabling the integration of any new resort location anywhere in the world without increasing IT staff.

suppliers within a region and different suppliers across regions. Finally, once the SAN is fully deployed the customer will likely require the assistance of a lead supplier to oversee the support activities of the other suppliers that contributed to the solution.

Soliciting the Proposals

Having developed the business goals and the statement of functional requirements, which will include a list of must-have features, it is then time to solicit proposals from multiple potential suppliers. In many cases, the proposals will go to systems integrators because of their ability to act in a vendor-neutral role across a broad range of geographies and technologies. These systems integrators may be the services division of a large server supplier or storage supplier, or completely independent of any particular hardware platform supplier.

One critical factor in preparing a request for proposal for global SAN deployment is to ensure that the requirements are limited to questions of capabilities and not to questions of design. That means that in order to ensure the best, most cost effective solution, you should not "over-specify" the solution, but rather you should focus on business benefits. For example, it may be a mistake to specify that "each hardware component proposed must contain no single point of failure," since replicating hardware solutions may be a cost-effective way to eliminate the risk of hardware that contains single points of failure. By specifying design, you may cause suppliers to over-engineer the solution without achieving the desired business benefit.

Supplier selection, especially in a global SAN implementation, will almost certainly be a question of compromise. No single supplier is likely to shine in all factors, across all regions, and among all technologies. Supplier proposal weighting should extend well beyond pricing considerations to questions of regional and local competency, the range of skills, and the completeness of the proposal.

Because SANs touch almost everyone in the organization, customers must look for "one throat to choke" when it comes to implementation and support. Some disk-focused suppliers will have, for example, little or no expertise in the area of tape backup/restore operations. Tape operations are a critical element in most SAN installations. By the same token, many tape suppliers lack real knowledge of disk storage systems or networking. A supplier that lacks expertise in one of the key areas of disk, tape, and networking may require the oversight of a systems integrator.

The Rollout

Just as with the rollout of a major new application, a test-and-pilot approach to SAN deployment is warranted. Many suppliers have developed SAN integration laboratories and testing facilities where a proposed design can be tested and demonstrated with the client's application. Once past the pilot phase, most companies will adopt a phased approach to implementing SANs. These installations should begin locally, and expand globally.

The key to success in any technology implementation is to remain focused upon the business goals. SANs may provide the capability to increase revenue by enabling the deployment of new revenue-generating applications faster.

Conclusion

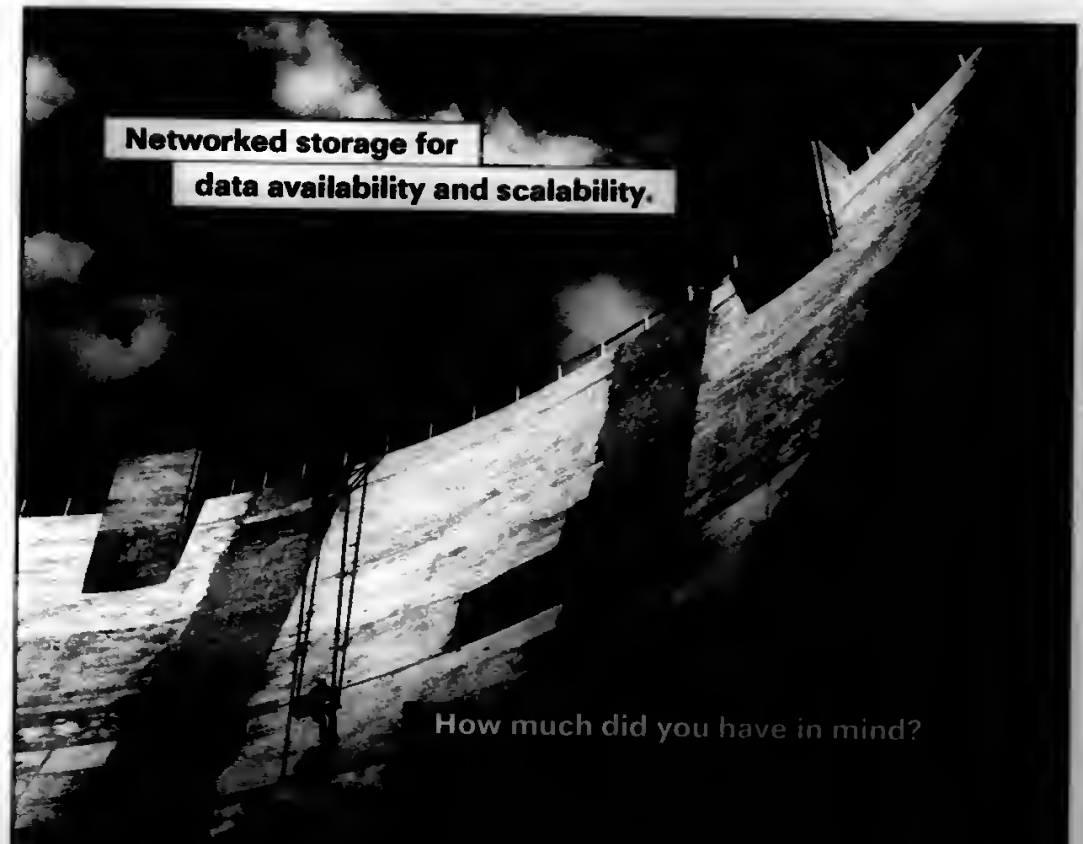
SANs may provide the capability to reduce cost by making more efficient use of storage resources, reducing the personnel management overhead, or enabling application and server consolidation. Finally, SANs may reduce risk to the corporation, by providing a fully redundant network for information delivery and application recovery.

Global SAN implementations will be fraught with challenges and will require an almost herculean effort on the part of the project manager. But the potential benefits make it an IT imperative.

John McArthur, Vice President Worldwide Storage Research, is responsible for the worldwide research agenda for storage systems and for disk, tape and optical storage mechanisms at Framingham, Mass.-based IDC.

IDC's Storage group offers storage research and analysis of the storage industry while providing knowledge on how to compete in this changing economy.

McArthur can be reached at: jmcarthur@idc.com



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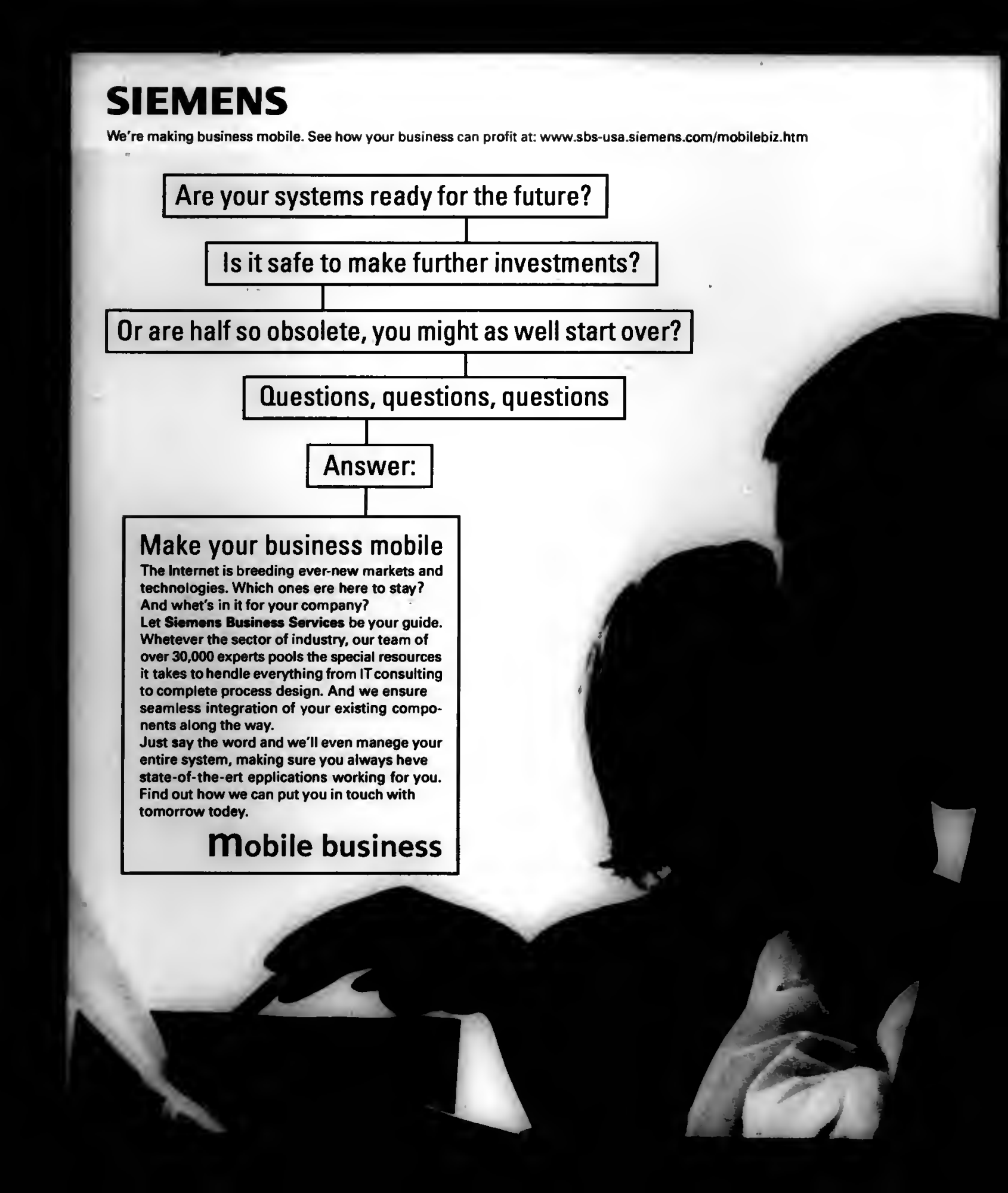

KNOWLEDGE CENTER

IT a la Carte

IT shops are finding it's easier and cheaper to rent IT services from ASPs than it is to build or buy. Now they just have to know how to pick the right ones.

STEPHEN SHEFFIELD

EDITOR'S NOTE

Users Speak: ASPs Can Be The Real Deal

ONE OF THE MORE humbling things about working at *Computerworld* is the way we sometimes research and develop an appropriately skeptical opinion and then have it blown out of the water when we run it by actual end users.

Usually, readers tell us we're being too soft on the vendors or listening to the hype too much. But sometimes they tell us that some hyped-up "innovation" is actually useful.

That's what happened with application service providers, a relatively new breed whose worth appeared to be unproven. Users told us they like getting the benefit of a complex application without having to buy it or sign a long-term contract with IBM, EDS or some other outsourcing behemoth. A monthly bill, a service-level monitor, a quick exit strategy, and you're done. What's oot to like?

So rather than busting hype, we focused this Knowledge Center package on the practical aspects of working with ASPs and protecting yourself when necessary.

We mapped the experiences of early adopters, who told us they got more out of the deals than they ever expected. They also told us how to know when a security ASP is really secure, gave us advice on when hiring an ASP makes financial sense and filled us in on the flameouts among ASPs.

By the way, we decided to call these companies ASPs, as the users did, just to stay consistent when talking about BSPs and MSPs and SSPs and all the other SPs. It's a sanity thing.

In addition to all that you'll find here in the print edition, there are research links, more stories, case studies, primers and a host of other resources at *Computerworld.com*. We hope it's useful. And thanks for the reality cbeck.

Kevin Fogarty is a Computerworld editor at large.

Quick Link

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invent

By filling key gaps in IT, application service providers are becoming long-term partners. By Mark Hall

SOMETIMES, WHEN you take a risk on a new service or technology, you get more than you paid for.

Rodric O'Connor discovered that his customer relationship management (CRM) application service provider saved his company an unexpected $800,000 a year in paper costs, but that wasn't even the best part of the deal.

Janet Lecuyer learned that by adding a step to the approval process for new online investor education modules developed by her ASP, her company actually got better and faster results from its vendor.

Mark Esdale found an entirely new market for his business by piggybacking a new service on top of his ASP's.

In the experience of these and other pioneering users, ASPs aren't risky, experimental vendors; they're just one more mainstream technology option for IT shops in both large and small companies.

That sets up the ASPs themselves for the explosive growth being predicted by many analysts, but it also means that all IT managers will have to be ready for the new reality of the IT landscape. They'll be faced with a growing array of options for outsourcing everything from enterprise applications to travel and entertainment reports. They'll have to develop internal standards for ASPs for such things as data security and prepare to fit outsourced applications into ongoing integration plans. Finally, ASPs often arrive in a company through departmental back doors, without IT's knowledge, much like the PCs of old, undermining IT managers' efforts to maintain control over IT assets.

Unexpect Benef

As you would expect, the Web-dependent ASPs got their share of bad press during the dot-com death march. Headlines trumpeted the demise of high-profile ASPs like Pandesic LLC, which hosted e-commerce sites for Oshkosh B'gosh Inc. and other online retailers, and the major retrenchment of others like Xuma Inc., whose online application middleware was used by dozens of companies.

But those are minor setbacks in the sizzling expansion of this market. According to a report published this summer by IDC in Framingham, Mass., U.S. spending on ASPs will grow to $15 billion by 2005, up from $770.5 million last year.

Tangible Intangibles

That kind of astounding growth will happen only if users integrate these services into the fabric of their IT operations the way San Francisco-based Putnam Lovell Securities Inc. did.

The investment bank discovered that its use of San Francisco-based Salesforce.com Inc.'s software cut $800,000 from its paper costs after its first year in production because the company could rely on a single data source to contact customers electronically, reducing the need to send physical mail on a regular basis.

But O'Connor, vice president of technology at Putnam Lovell, says he likes the service because it helped consolidate customer information from nine separate databases. Before the ASP service began early last year, that dispersal made it nearly impossible for one person to always see the latest information in every system.

Now, armed with the depth of information available through Salesforce.com, when Putnam Lovell's investment bankers go into a client meeting, they have a comprehensive view of a prospect's or customer's situation, O'Connor says.

"The intangible benefits are more important than the tangible ones," he explains.

"We had no enterprise record of events," he says. The wealth of customer knowledge is a far greater strategic plus to the company than the money saved from using the CRM program to automate mailing and printing projects inside the company.

At Charles Schwab & Co., executives were struck by the irony that it became easier to hit deadlines when another step was added to the process of approving their ASP's custom development work.

Lecuyer, vice president of investor e-learning at the San Francisco-based financial services provider, said her group has worked with Digital Think for nearly two years to develop online investor software that, while a part of the Schwab Web site, is hosted and managed by the ASP. In December of 1999, the company went live with the first three modules in its Getting Started program for investors. It now has 16 modules.

During that time, Lecuyer added a pre-alpha testing phase before rolling out a new module in order to speed deployment. Although it's counterintuitive to think that adding a step would help a process move faster, Lecuyer says it makes perfect sense. Before the pre-alpha stage was added, Digital Think, which is located a few blocks from Schwab, would show Lecuyer's staff alpha modules and get feedback. Sometimes, the change requirements at the alpha stage would necessitate complex, time-consuming work. By adding the pre-alpha review stage, they were able to catch the most significant changes at a point when making them would be far less time-consuming.

In Scarborough, Ontario, Canada's top computer-aided design integrator, CAD Resource Centre, launched an online proposal-generating application of its own that it could bolt onto an online sales force automation application from its ASP, Upshot Corp. in Mountain View, Calif.

> [Deciding whether to use an ASP is] about more than cost. You have to look at your skill set needs and develop those that are strategic and outsource what you can.
>
> MARK MOONEY, CTO, HOUGHTON MIFFLIN CO.

Esdale, who is president of CAD Resource Centre, which is a division of $420 million Rand Worldwide in Mississauga, Ontario, said his company used Upshot for 18 months and liked the service but built another site, Quotegen.com, that could overcome Upshot's lack of a proposal module.

Now, salespeople link Upshot and Salesforce.com services to create sales proposals within the online CRM and sales force automation programs. It saves salespeople time and reduces the number of errors, since the data is taken directly from the ASP software.

Narrower Is Wider

Naturally, not all of the lessons learned about ASPs have been so upbeat. Lots of companies have been hurt badly by service providers going belly up or not being able to expand to meet their needs.

One problem may be that some ASPs reach beyond their grasp, making promises they have trouble fulfilling.

"There is a lack of depth" to the services of many ASPs, says Craig Watson, CIO at FMC Corp., a Chicago-based manufacturer of chemical, energy and other goods.

"The problem is that no single provider does what we need equally well across hosting, network management, secure access, Internet, firewall management and SAP processing," Watson says.

At Boston book publisher Houghton Mifflin Co., managers tried to outsource some IT help desk operations to an ASP to save money. But they brought those operations back in-house because quality began to suffer, says Phil Stice, vice president of information and support services. For example, Houghton Mifflin uses both PCs and Macintoshes, but the hired help desk didn't have the same level of knowledge of both systems.

That bad experience didn't sour Houghton Mifflin on ASPs overall. Stice says the company has used an ASP to run its PeopleSoft application for more than 18 months, and success there led it to recently move its account receivables software to an ASP.

Mark Mooney, Houghton Mifflin's chief technology officer and Stice's boss, says, "We'll continue to select ASPs in areas where it makes sense. It's about more than cost. You have to look at your skill set needs and develop those that are strategic and outsource what you can that isn't."

Outsourcing IT infrastructure and well-established applications is a key and well understood part of the utility that ASPs offer IT managers. But narrow-cast, targeted applications for corporate or divisional use have seen the most success to date because they help balance IT's limited resources with the apparent insatiable end-user demand for new software and services.

For example, Ocean Spray Cranberries Inc. in Lakeville, Mass., automated travel and entertainment reports with Concur Technologies Inc.'s Web-based service more than a year and half ago. Assistant Treasurer Bill McBain says that going into the project, he knew that "there are always more requirements than there are IT resources."

The ASP approach fit the bill. Still, McBain says, IT needed to audit Concur's security and mapped the travel and entertainment program to Ocean Spray's SAP system. IT also oversees a weekly file transfer between its SAP system and Concur's application.

However, technical support and application development are all handled by Concur. Ocean Spray's experience with the Redmond, Wash.-based ASP "will help us embrace more service providers," says McBain. "We have to

Continued on page 34

Quick Links

ONLINE EXCLUSIVES

- Need a quick primer on ASPs and how they work? www.computerworld.com/cwi/story/0,1199,NAV47_STO62485,00.html
- Reader forums, analysts' expert advice, reviews to put you together with your dream ASP – everything you need to know about checking out and living an ASP. www.computerworld.com/cwi/story/0,1199,NAV47_STO62510,00.html

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Continued from page 31

look at our businesses. We are not in the [travel and entertainment software] business."

ASPs may be able to deliver dramatic savings and improved customer service, but they can't change behavior. At Nicholas Applegate Capital Management in San Diego, the rollout of Concur's travel and entertainment service sputtered after two years, with only 60% of the 450-employee subsidiary of Allianz Insurance Co. signed on.

According to Mel Nutter, systems project manager, top managers didn't give the ASP's approach their full support. As a result, the company continues to process more than one-third of its travel and entertainment reports in the old-fashioned, prepaid, paper-based system it's had for more than a decade, despite clear financial advantages of using the ASP.

Nutter says, "The old way of doing things was ingrained in our culture for 15 years."

Choosing and, more important, staying with an ASP is based on the value it brings to the overall business. And in the past three years, the broadly defined ASP market has found most of its success by filling gaps in IT operations at companies large and small.

As FMC's Watson says about the steady uptick of ASP usage in his company, "We've known all along they were important, and their value and importance are increasing." ◗

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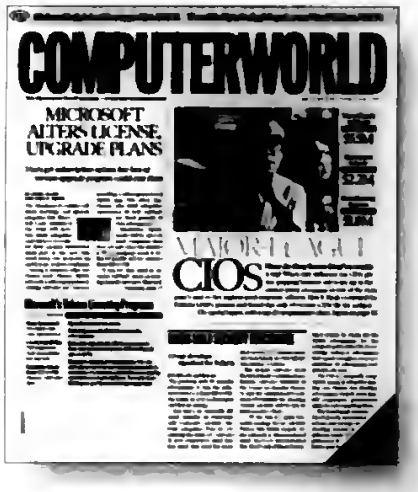
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Under The Radar

One key problem ASPs create is that because their services are inexpensive and don't require a capital investment, they can bring critical IT resources into an organization without the approval of IT managers. In that regard, the emergence of ASPs is like the arrival of PCs at companies in the 1980s. With ASP resources often priced at $50 per user per month, business unit managers can rent them without IT's knowledge.

That was the case at Thomas Cook Currency Services Inc. in Toronto. A division of Germany's Thomas Cook AG, a global travel services company, Thomas Cook Currency Services needed to automate its sales process but didn't have the resources to develop and support a major application. It had tried advanced contact management software such as GoldMine from Colorado Springs-based FrontRange Solutions Inc. but found that synchronization issues always made it a problem. So it turned to an ASP and skipped IT management review.

"We flew underneath IT's radar," says Michael DeSimone, vice president of e-commerce at Thomas Cook Currency Services.

He remembers fessing up to his deployment of Salesforce.com's CRM software only after learning from an IT executive that a global deployment of a Siebel application was planned. Given Thomas Cook's decentralization, DeSimone didn't have to part with Salesforce.com, which his users have come to depend on. Also, he says, his upfront and ongoing costs to support the Siebel application would have been far more than the ASP's hit on his budget.

– *Mark Hall*

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Watching The Watch

It's too hard to hold a security outsourcer to a detailed service-level agreement, customers say. Instead, they're using common sense and caution to keep an eye on things. By Robert L. Scheier

STEPHEN SHEFFIELD

IN 1989, THEN-PRESIDENT Ronald Reagan summed up his view on arms treaties with the Soviet Union with some famous advice: "Trust — but verify." At least he had spy satellites and a treaty to work with. But when it comes to security outsourcers, detailed monitoring of their work is almost impossible. Users say that the complex, ever-changing nature of network security threats makes it infeasible to write service-level agreements (SLA) detailing what outsourcers should do or what the penalties should be if they let any bad guys through.

Rather than writing detailed SLAs, some early customers are doing careful, upfront evaluations of security outsourcers and forging close relationships with them to ensure good service. Many are also outsourcing only some security functions until they see

how well this new service model works.

"It's impossible to cover all the details in a service-level agreement," says Peter Marchand, head of electronic data processing at KBC Securities NV, a securities trading firm in Brussels. "If your aim is to cover all possible issues in a service-level agreement, and you want compensatioo for [every possible damage], then you'll never sign a service-level agreement." If an outsourcer agrees to such an SLA, its lawyers will add so many conditions "that when you oeed it, it will be worthless," Marchand says.

"If we said 'No break-ins,' how do you quantify that?" asks a security manager at a Fortune 1,000 manufacturer in the eastern U.S. who asked not to he named. "What is a break-in, and if it happens, what occurs after that as an incident response? It's difficult to really tell what is an attack sometimes, and there are new threats constantly appearing. We want to he sure they perform to a certain level, but we're not hung up on the SLA."

New Market

Writing a detailed SLA is difficult, partly because security outsourcing is so new and covers many different areas. Steve Hunt, an analyst at Giga Information Group Inc. in Cambridge, Mass., says SLAs can cover on-site consulting, remote monitoring of firewalls and the auditing of the customer's internal security efforts, among other requirements.

Customers must also consider their outsourcer's viability, according to a March report from Stamford, Conn.-based Gartner Inc. Gartner expects the market for outsourced security monitoring and management to grow at a combined annual rate of 31% through 2005, but it predicts that as many as 60% of outsourcers will fail or leave the business. As outsourcers are bought out or acquired, "SLAs and contracts may have to go through disrupting revisions that may not meet the security needs of the enterprise," Gartner predicts.

The rapid evolution of security threats is leading some companies to outsource only Web-facing security, keeping more familiar security functions, like virus protection, in-house.

As a result, some early customers are taking a more relaxed approach, creating basic SLAs while outsourcing only some of their security needs.

In April, Alleghany Energy Inc., a Hagerstown, Md.-based utility, signed a two-year contract with an outsourcer to run the intrusion-detectioo systems for its networks and about 125 application servers, says Paul Castellano, Alleghany's director of IT security and business continuity. The utility continues to handle firewall protectioo for notebook computers and virus protection in-house and is contracting with a second vendor to perform periodic vulnerability assessments.

The outsourcer (which Castellano declined to name) is responsible only for informing Alleghany of attacks, not for repelling intruders, he says. For now, the only specific element in the SLA is a requirement that notification occur within 15 minutes of the attack's discovery. But as Alleghany learns more about security outsourcing, "we'll probably be adding to the SLA," Castellano says.

The Fortune 1,000 manufacturer is also moving cautiously. Since the spring, it has outsourced management of the intrusion-detection systems and firewalls for its Web-facing systems while keeping security for its core systems in-house. "We did not want to tie down the specifics; we left [the SLA] rather broad because we're still in a learning mode here," says the company's security manager.

Currently, that SLA requires round-the-clock monitoring by the outsourcer, broadly describes the systems covered and details how quickly the outsourcer must respond to an attack, says the manager. Rather than include detailed requirements, this security manager says, he trusts his upfront evaluation of the outsourcer as well as his "strategic partnership" with the vendor.

"We're communicating with the vendor at the highest levels in their organization. We're one of their key accounts," he says, "We're integrated very, very tightly with their organization. It's the only way we would feel comfortable with an outsourced security situation."

Since November 1999, KBC Securities has outsourced the firewall and intrusion-detection system protecting its customer Web site, the firewall protecting its trading systems and the public-key encryption infrastructure guarding its customers' computers. Its agreement with security outsourcer Ubizen Inc., whose U.S. headquarters is in Reston, Va., doesn't guarantee that the site won't he hacked, says Marchand. Instead, it specifies the hours during which Ubizen will perform its monitoring, the conditions under which it will provide on-site and remote support, and how quickly it will respond to problems.

Fred Eisenberg, director of information security at Mount Sinai NYU Health io New York, is outsourcing the authentication and encryption functions of the group's Web site to give about 700 doctors and nurses access to clinical applications. The health care provider's SLA with the outsourcer, Seattle-based Aventail Corp., lets it escape the contract or receive financial remuneration if Aventail fails to perform. Eisenberg says that since the start of the outsourcing arrangement early this year, he's been totally satisfied with Aventail's service.

Some analysts are warning security managers that they need to be more rigorous when making the choice to outsource security. Gartner analyst Kelly Kavanagh says that they shouldn't even consider it until they have experience outsourcing other functions and that they must understand which security functions are most important to their businesses. Otherwise, managers could end up demanding too much or too little of their vendors. For example, if "the SLA calls for four firewall policy changes a month, and what they really turned out to need are four a week," the customer ends up paying "by the drink" for the extra changes, Kavanagh says.

Other analysts suggest entering SLAs that specify how quickly outsourcers will change firewall configurations and update virus definitions, or even specify what security certifications are held by the outsourcer's employees and the physical security at its data center.

But for customers such as Marchand, it makes more sense for now "to focus on major concerns than to try to cover all the details and all of the issues. It could take you more time to set up such a service-level agreement than to set up the [security] project itself."

Scheier is a freelance writer in Boylston, Mass.

Feeling Secure About Outsourced Security

- Understand clearly which **security functions** you need. Don't expect a service provider to tell you what you need to know.
- Make sure someone on your staff knows **at least the technical basics** of network security.
- Don't give all of your security functions to a single service provider at once; if it fails to perform, **you're left vulnerable.**
- Agree in writing on what functions the service provider will deliver and how its performance will be measured in **specific, quantifiable terms.**
- Consider hiring a **qualified third-party** security consultant to vet the service provider's technical expertise and monitor its performance.
- Plan what to do **when (not if)** your security is breached, whether it's the result of an outside attack, a disaster, a service provider oversight, bankruptcy or an attack by a malicious insider.
- Don't expect a service provider to offer perfect security against every possible threat, and don't try to write a contract that insists it do so, **because it can't.**

ONLINE EXCLUSIVES

Quick Link

- Can you count on your security service provider staying in business? Here are some signs to look for to judge how healthy your provider is:
  www.computerworld.com/r/222270
- A sampling of SSPs. Here's a representative (though not complete) listing of security service providers, along with links to their sites:
  www.computerworld.com/r/222270

Service Providers: The New Breed

The Application Service Provider model has grown up and become what the IT user really needs these days, namely a Full Service Provider or FSP. Sharing the same monthly subscription or usage-based fee structure as the ASP model, the FSP model provides IT with consulting, application customization and integration, managed services, hosting, and other vital enterprise services.

"It has become increasingly difficult for IT departments to maintain all the connectors between their own custom code and today's enterprise applications, which are constantly being modified," says Tony Summerlin, Vice President of e-Business Strategy at Unisys Corp. "That's where the FSP can help. As you consider your legacy systems, the more you try to integrate new applications, the more the FSP is relevant."

Summerlin notes that the FSP model plays perfectly into the core strengths of Unisys and its rich experience in providing enterprise information solutions, application customization, and data center infrastructure.

For more information about this exciting new generation of service provider and end-to-end platform independent services from Unisys, click on **www.unisys.com/e-biz/FSP** today.

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We have a head for e-business.

NICHOLAS PETRELEY

Time to Rethink ASP Priorities

THERE ARE PLENTY of application service providers hosting e-commerce sites, but what I want to know is why ASPs aren't taking over many of the most tedious and duplicated efforts of IT departments.

I'm not the only one to see business opportunity written all over this model. Venture capitalists were drooling over ASP start-ups of this sort just a couple of years ago. Yet practically nothing has emerged in this space.

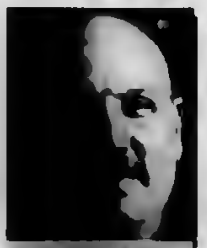
Perhaps we'll see a surge of interest in the coming year. You couldn't ask for better timing. The ASP model is ideally suited to address the single biggest black hole to suck down IT money and resources, one that's increasing every year. Come on — you know what I'm talking about. Even the banks in Redmond are changing their signs to read the time, temperature and latest Microsoft security flaw.

It doesn't take a marketing genius to picture an ASP advertisement to exploit this: "Why pay a large staff to chase down and eradicate the latest mutation of the SirCam e-mail worm? We at ASPirate Inc. can guarantee that you will never be affected by e-mail-propagated attacks again. Denial of service? Not to worry. ASPirate stops these network packets from ever reaching your organization."

Going beyond marketing dreams to philosophy, the ideal ASP would provide customers with all of the traditional application services to which they're accustomed: e-mail, document storage and management, workflow and collaboration, etc. With enough bandwidth, the ASP could offer word processing, spreadsheets and more. Customers would access these services over the Internet via a secure virtual private network connection.

Most important, the ASP should anticipate that smart customers will demand a deal that will allow them to switch to another ASP if they're ever dissatisfied. Without competition, there's no guarantee that an ASP will be motivated to perform to a customer's satisfaction.

There's plenty of hardware and software available today that would allow an ASP to guarantee secure universal access from almost any client platform, confidentiality of data, reasonable performance and reliable uptime.



NICHOLAS PETRELEY is a computer consultant and author in Hayward, Calif. He can be reached at nicholas@[illegible].com.

Perhaps the only thing stopping an ASP explosion is attitude. Assume that you run the IT department under the philosophy "Nobody ever got fired for . . ." Today, your employer has decided to spin off your department as a separate company, with you as president. Your (now previous) employer asks you if your new company could provide the ASP services I've described. What would you do differently in order to meet those conditions?

Many changes would be optional, but I'll tell you one that wouldn't be: You would have no choice but to persuade your customer to adopt a network computing model for all work-related activities. It isn't difficult to guarantee the integrity of the data on your servers or near-universal access to the data via any browser-enabled client. But I know of no cost-efficient way to be responsible for the data that users store locally on their machines.

Also, you must insist that users run all programs on their machines from within the "jail" of an unprivileged user context, or perhaps via a properly configured Java Virtual Machine.

Having begun with the premise that you live by the status quo, you probably realize how difficult it would be to convince the customer — your employer — that this radical shift in approach is more important than which operating system or office suite you choose to use. Worse, someone would have to convince the users, which is probably why we haven't seen an ASP explosion of this type. Given that the ASP model makes so much sense, perhaps it's time we re-evaluated our priorities.

What features do you think are important to build into SLAs?

A good service-level agreement is the No. 1 feature IT managers said they look for in an ASP. But what should a good SLA include?

Disaster recovery	78.2%
Penalties for failing to meet standards	78.2%
Help desk availability/hours (functional support)	91.8%
Problem response time	85.5%
Help desk availability/hours of operation (technical support)	89.1%
Application availability	96.4%

SOURCE IDC FRAMINGHAM MASS SURVEY OF 55 IT MANAGERS MULTIPLE RESPONSES ALLOWED

Be Careful With Your SLA

According to a report from IDC's "xSP Advisor" newsletter, customers frequently build problem-resolution components into their service-level agreements (SLA) with application service providers. But often, they neglect to include metrics such as the amount of time required to repair the service and specific numbers on application performance.

When an ASP relies on other service providers for network connectivity or other services, the performance of those partners often isn't included in the SLA.

Another item to note: Problem response and problem resolution are two different things, and users need to know whether their ASP guarantees a response or a repair within the given time, says Molly Upton, an analyst for "xSP Advisor." For example, almost 45% of ASPs guarantee response to critical problems within 30 minutes, but only 10% said they meet that time limit for noncritical problems.

In e-business everyone wants to unify higher enterprise performance with lower total cost. The ES7000 goes further.

The Unisys e-@ction Enterprise Server ES7000 is no ordinary server. It does the enterprise-level transactions a CIO dreams about. And at a total cost that lets a CFO sleep at night. Powered by our CMP architecture, the ES7000 harnesses 32 Intel® Pentium® III Xeon™ Processors. Delivering a level of performance from Microsoft® Windows® 2000 you'd normally only associate with UNIX. Combining scalability, availability, and flexibility with all-important affordability. That's enough to even unify the CFO and the CIO. Which until now, was an impossibility. To find out what the ES7000 can do for your e-business, visit **www.aheadforebusiness.com**.

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Prepare for The Worst

Users should protect their interests – and their data – in case the ASP relationship goes bad, say legal experts. By Mitch Betts

YOU'VE FOUND AN APPLICATION SERVICE provider. You've talked about money, goals and partnership, and you're ready to sign up for a long-term commitment.

But have you worked out the prenuptial agreement?

Lawyers who represent corporate customers while negotiating ASP contracts say it's important to map out an exit strategy to be used if the relationship turns sour and ends in divorce. You hope you'll never need it, but users must protect their interests — including their data — in case the ASP's service deteriorates or it goes out of business.

The risk is great. Gartner Inc. in Stamford, Conn., predicts that 60% of the 500 ASPs that existed earlier this year will be out of business by year's end.

Many customers had to scramble when Pandesic LLC, a highly touted ASP in Sunnyvale, Calif., ran out of gas a year ago. More recently, Alameda, Calif.-based security service provider Pilot Network Services Inc. closed in April, abandoning clients such as Sovereign Bancorp Inc., The Washington Post Co. and Providian Financial Corp.

San Francisco-based Providian sent several of its own IT staffers to Pilot's Alameda data center to work with the remaining Pilot employees to prevent disruptions and move to a different contractor.

"It was stressful because we didn't have a lot of notice and we had to get in there and scramble to keep things going," says Konrad Alt, Providian's chief public policy officer.

The path to a less stressful ASP experience begins, of course, with diligent research and careful selection of the provider before signing on the dotted line. It's important to study not only the IT capabilities, but also the finances of the prospective ASP — and to treat the ASP as if it were a potential merger partner during this due diligence phase.

In the contract, be sure to require a steady stream of key financial data from the ASP on a monthly or quarterly basis so you can monitor its financial condition and spot problems along the way, advises Peter C. Quittmeyer, a partner at the law firm Sutherland Asbill & Brennan LLP in Atlanta.

After all, ASP service problems can occur for business reasons as well as for technical reasons. Service can suffer as a result of understaffing, underpaid staff, faulty procedures, staffers distracted by business problems, layoffs or changes in business direction, or because the ASP has started catering to a new, bigger customer.

Even an ASP that's hitting its growth targets can be in danger of collapsing if it's living hand-to-mouth on venture capital.

Quittmeyer says he's leery of ASPs that are "giving away the service at very cheap rates, nowhere near close to covering their costs unless they reached very high volume levels.

"If the ASP isn't making enough money off you, that's a serious problem. You may have to pay them more to get their attention," Quittmeyer says. In fact, one analyst suggests that big corporate users consider investing in their ASPs, both to get priority treatment and to help keep them afloat.

Of course, the core of the ASP relationship is the service-level agreement (SLA), which spells out in measureable terms the obligations of the service provider, from guaranteed network uptime to the responsiveness of the help desk.

"Then we try to attach performance penalties" if the ASP fails to meet the service levels — typically a credit toward the next monthly payment, says John A. Funk, a partner at Jones, Day, Reavis & Pogue in Dallas. "Make the vendor put between 5% and 15% of their monthly revenue at risk for failure to meet service levels," Funk says. He advises that the highest penalty be placed "on the things you care most about."

And if the ASP fails to deliver important services for several months in a row, it's time to invoke the termination clause in the contract.

"To avoid becoming hostage to a poorly performing provider, users should require contracts that include an exit strategy," said analyst Christine Ferrusi Ross in a report from Forrester Research Inc. in Cambridge, Mass. But an exit strategy means more than just having a termination clause.

As a practical matter, the termination clause is virtually worthless unless the user can quickly hook up with another service provider or bring the data processing in-house. After all, the goal is to keep the business function running, not to win legal points.

The No. 1 rule in negotiating an ASP contract is to retain ownership — and access — to customer data, at any time and in whatever format the customer requires.

"If you're going to pick up and operate somewhere else, you need the data," notes Robert E. Zahler, an outsourcing expert at Shaw Pittman LLP, a Washington-based law firm.

Users should either get a copy of the backup data or make sure it's put in a vault where "you have the

right to physically come and take that data out of the vault" if the ASP service is inadequate, Zahler advises.

But, warns Quittmeyer, "there are vendors that condition the return of data on receipt of payment or something else, which the user just shouldn't accept."

Of course, the data does you little good without application software to process it. Users can request a "conversion right" to the software license, in which the ASP license is converted to an end-user license.

Other options include licensing the software directly from the software vendor and taking the operatioo in-bouse, putting the software in escrow, or finding another ASP or outsourcing contractor who has the same software and signing up with them.

The contract should also detail the transitioo assistance the ASP will provide, including time frames and guaranteed uptime. Insist that the ASP provide a procedural handbook, too, so a different IT staff can make the application work the same way the ASP did.

The worst-case scenario is for the ASP to go bankrupt. Why? Bankruptcy courts give a fair amount of protection to the bankrupt party, so all those great contract terms are usually unenforceable and customers are near the end of the line of creditors.

So choose your vendor wisely. Because once your ASP is at the point of bankruptcy, says Funk, "you're obviously just doing damage control."

At that point, legal issues pale in comparison to salvaging tbe application and data. The best trick is to make sure you have a list of the ASP's key technical people — with addresses and home phone numbers, says Asmita Shirali, a lawyer at the Cleveland office of Jones, Day, Reavis & Pogue.

But short of an ASP disaster, the far more likely problem is a dispute over what insiders call the three *P*s: power (electricity outages), pipe (carrier outages) and ping (Internet connections).

In fact, disputes between ASPs and their customers are so inevitable that the industry itself is gearing up for more dispute activity. Earlier this year, the ASP Industry Consortium in Wakefield, Mass., issued a set of dispute-resolution guidelines.

The industry supports alternative dispute resolution, sucb as arbitration, rather than courtroom litigation. Alternative resolution strategies are faster, less expensive and avoid jurisdictional disputes, says Paula Hunter, chairwoman of the consortium.

Using an alternative dispute-resolution procedure is in an ASP's best interests because the proceedings are confidential. Bad publicity about a client dispute could be disastrous for a fragile ASP seeking new capital and customers.

Quick Link

ONLINE EXCLUSIVES

- Advanced tips on how to make sure your service-level agreement with an ASP protects your interests: www.computerworld.com/q/72347
- Guidelines on how to prevent and resolve disputes with ASPs; a buyer's guide to ASP SLAs: www.computerworld.com/q/72348

But is dispute resolution good for users? Maybe not, say lawyers such as Zahler and Funk, who represent users in outsourcing deals. They say that the deck can be stacked against users and that the complex procednres can be drawn out interminably. And the confidentiality of the alternative dispute-resolution system actually works against user interests.

An ASP wants to resolve any dispute as quietly as possible and not have it aired in open court. By threatening a lawsuit, the user gains leverage — leverage that can be used to get a settlement — because the ASP doesn't want a lawsuit to hit the news.

"The threat of having the dispute aired publicly will be better than actually having the dispute, in terms of getting increased performance out of your vendor," Zahler says.

$800 Worth of Legal Advice, Free

Lawyers who specialize in negotiating with ASPs offer the following tips:

Peter C. Quittmeyer
Sutherland Asbill & Brennan LLP, Atlanta

- The contract should include financial disclosure covenants so the user can monitor the ASP's health.
- Analyze performance indicators such as customer growth, capital-raising requirements and big-name partners.
- Establish a transition plan that identifies the budget, timetable and technical requirements should you need to switch ASPs.

Robert E. Zahler
Shaw Pittman LLP, Washington

- Consider having a contingency contract with a second ASP to provide data processing ou short notice if the first ASP fails.
- Be aware that if your ASP is acquired, the new owner is obligated to honor the original contract.
- Require your ASP to disclose its subcontractors.

John A. Funk
Jones, Day, Reavis & Pogue, Dallas

- Performance penalties should amount to 5% to 15% of the ASP's monthly revenue.
- Insist on getting a detailed procedural manual from the ASP in case you have to re-create the data-processing system.
- Try to obtain the right to bring the data processing in-house, if necessary. And try to have the software source code placed in escrow.

Asmita Shirali
Jones, Day, Reavis & Pogue, Cleveland

- Call the ASP's references before signing up. Ask how they've handled peak times and how often they've crashed.
- Ask the ASP how many other contractors will handle your data and what security measures they have.
- Keep a list of the technical people — names, addresses and contact information — on your account, so you can hire them if the ASP fails.

ASP Winners and Losers

IT HASN'T BEEN AN EASY year for many application service providers. Despite a strong forecast for hosted services, a glut of vendors and the dot-com crash are likely to cause further consolidation, say analysts. "We will see a greater concentration of the market in a smaller number of players," predicts analyst Jessica Goepfert at IDC in Framingham, Mass., who notes that the top 10 companies already own 45% of the market today.

So who are the winners — and losers — so far? To find out, *Computerworld*'s research department created two lists: "The Top ASPs" (next page) are ranked based on fiscal 2000 revenue estimates from IDC and Stamford, Conn.-based Gartner Inc., while the "Failed xSPs" list (below) covers a wide range of hosted service providers that have gone out of business during the past year.

Gartner analyst Rita Terdimao warns that some companies that are on top today could end up on the casualty list before the shakeout is over. "We see a huge consolidation. Right now you've got a billion players with zero revenue and zero profitability," Terdiman says.

The total U.S. market for application services last year came to just $770.5 million worldwide, according to IDC. But the total market is expected to more than double this year and jump to $15 billion by 2005, the market research firm says. Goepfert says she believes the current economic slump will actually increase that demand. "Larger companies view ASPs as a means to reduce their own costs," she explains.

Just who will stay on top? Goepfert says companies such as Electronic Data Systems Corp. and IBM have the deep pockets necessary to succeed. But she also likes niche market providers Surebridge Inc., a Lexington, Mass.-based company that focuses on health care, and Portera Systems, a Campbell, Calif.-based firm that targets professional services organizations.

The current problems at many xSPs have more to do with poor business plans and too many vendors than with a drop in demand, according to analysts. One of the most notable failures was Pandesic LLC, which depended on a revenue sharing model with its dot-com retail customers that "seemed like a good idea at the time but didn't hold water," Goepfert says. By contrast, Red Gorilla gave away services and for revenue relied on advertising that never materialized. Still others overspent on sales and marketing without regard to profitability and simply ran out of money when the venture-capital well ran dry.

When an xSP does fold, users don't always receive advance notice or the assistance they need to move to a new provider. Mike Perini, vice president at the Petroleum Equipment Suppliers Association in Houston, says he received no advance notification when eBaseOne Corp. failed last year. His Web site continued to run unattended for about a month, he says. And although he had copies of all applications and data, moving the domain name was problematic. "Without someone to OK the domain change, we couldn't move it," he says.

Perini hasn't soured on ASPs — he's currently running with another vendor. His advice: "Make sure you have a contract that they are required to turn things over if they go out of business," and duplicate applications and data as a contingency. "We were smart enough to never have anything over there that we didn't have a copy of over here. So we didn't require anything off the systems," he says.

Terdiman recommends taking a hard look at a prospective vendor's business model and balance sheet. "If they're already profitable, that's in their favor," she says. But in the current competitive climate, "there are no sure bets here."

— Robert L. Mitchell

ONLINE EXCLUSIVES

- More information, plus tools you can use to scout out your own ASPs, negotiate your own deals, protect yourself and keep up with the latest ASPs have to offer: www.computerworld.com/q/TK2010
- Advanced tips on how to make sure your service-level agreement with an ASP protects your interests: www.computerworld.com/q/T22407

xSPs that are out of business or no longer offering hosted services

	SERVICES OFFERED	LAUNCHED	CLOSED	NOTES
Agillion	CRM services and software	1998	Spring 2001	Out of business
Driveway Corp.	Data storage and online file management	1998	March 2001	Out of business
EbaseOne Corp.	Application infrastructure provider	1999	July 2000	Out of business
FiMetrics Inc.	Integrated, Web-based financial applications for small and midsize companies	2000	February 2001	Out of business
HostLogic Inc.	ERP and CRM for vertical markets such as health care and chemicals	1999	February 2001	Out of business
HotOffice Technologies Inc.	Office services	1995	December 2000	Out of business
ISearch Inc. (Interactive Search Inc.)	Human resources	1994	March 2001	Out of business
JustOn Inc.	Data storage and file sharing	1999	December 2000	Acquired by Novell Inc.
Netdrive.com Inc.	Data storage	1999	January 2001	Acquired by Visto Corp.
Pandesic LLC	E-commerce	1997	February 2001	Out of business
Paradigm4	Wireless data network services	1996	March 2001	Out of business
Red Gorilla	Time and expense service	1999	February 2001	Out of business
Sales.com	Sales force automation services	1999	June 2001	Out of business
ShopTok Inc.	Online community hosting	1998	March 2001	Out of business

The Top ASPs

[illegible] Inc. [illegible]	Offers enterprise automation and managed application services. Focuses on e-commerce, ERP, CRM, database and collaboration applications.	Enterprise	$100M	AARP, Coventry Health Care Inc., Cornerstone Brands Inc., Franklin Covey Co., Hershey Foods Corp., Kinkos.com Inc., Lego Maxon Inc., Liberty Financial Cos., others
The [illegible] Group Inc. Lexington, Mass. www.[illegible].com	An ASP for health care providers, health plans and benefits administrators.	Vertical market	$54M	St. Paul Radiology, MedPartners Inc., Talbert Medical Group Inc., Eye Clinic of Wisconsin, Providence Health System
Oracle Corp. Redwood Shores, Calif. www.oracle.com/	Offers a portfolio of hosted health care applications and consulting services to assist health care organizations with the transition to a hosted application.	Vertical market	$54M	Blue Cross/Blue Shield Association, Institute for Urban Family Health, Preferred Health Systems, McKesson HBOC Inc., Anthem Blue Cross Blue Shield, MVP Health Plan, others
Interliant Inc. Purchase, N.Y. www.interliant.com	Managed messaging, managed hosting, Web hosting, security services, professional consulting services. Specialties include CRM, ERP and e-commerce.	Enterprise	$49M	DataCert Inc., Fleetwood Homes Inc., World Book Online
Qwest Cyber.Solutions LLC Denver, Colo. www.qwestcybersolutions.com	Hosts IT infrastructure and applications, including CRM, ERP, sales force automation and e-business. Offers application development and implementation.	Enterprise	$46M	Expanets Inc., Mitsubishi Silicon America, Rochester Institute of Technology, Redback Networks Inc., DaimlerChrysler AG, Systech Retail Systems Inc.
Corio Inc. San Carlos, Calif. www.corio.com	Offers a suite of hosted enterprise application software. Also provides infrastructure for hosting customer applications, including security services.	Enterprise	$43M	Macromedia Inc., Excite@Home, MadeToOrder.com, Exporion Inc., Vertical Networks Inc., Zentropy Partners Inc., Quadrem International Ltd., Hitachi America Ltd., Elamex Holdings Ltd., others
[illegible] Inc.) [illegible] www.[illegible]solutions.com	Hosts enterprise applications from SAP, Ariba, Intershop and Siebel Systems Inc.	[illegible]	$27M	Autodesk Inc., eBay Inc., Solvay SA, Tecnemart, Akzo Nobel Surface Chemistry LLC, Asterix LLC, Brightcove Inc., Fresh America Corp., Frog work Inc., Linde Lift Truck Corp., others
[illegible] Services [illegible]	Offers a wide range of hosted services, including business applications, Web site hosting, infrastructure, e-commerce, managed storage, network.	Enterprise	$26M	WorldWide Retail Exchange, e2open, Volkswagen AG, Covisint.com, eHospitalEurope, Rubber Network
[illegible]	Hosts business applications, including e-commerce, ERP and CRM, human resources, financial, manufacturing, e-mail/collaboration and others.	Enterprise	$25M	DefenseNet Solutions Inc., TeamGroup, New York Times Digital, Novatek Inc., Qubeta Corp., Xcelecom Inc., Global Metro Networks Inc., AQM Information Solutions Inc., others
[illegible] Corp.	Offers a broad range of hosted applications, Web hosting, integration and consulting services.	Enterprise	$25M	Charlotte-Mecklenburg Police Department, Chevron Corp., The Dow Chemical Co., Bow Sales Administration Services, eFedia LLC, Freshbox Inc., World Savings and Loan Association, others
[illegible] Inc. [illegible] M.C. [illegible]	Provides application development; business, e-business and Web hosting services; managed network services.	Enterprise	$21M	American Kennel Club, Bayer Corp., Blue Cross/Blue Shield Association, Carolina Power and Light Co., CrainDrugStore.net, Cooper Tools GmbH, Food Lion, Greenville Utilities, others
[illegible] Inc. [illegible] www.[illegible]solutions.com	Offers e-business application development and hosting.	Enterprise	$20M	Healthcare Services ProVider, PacificCare Behavioral Health Inc., The Hartford Financial Services Group Inc., Fuji Photo Film U.S.A. Inc., Honeywell Inc., MIT Technology Review, others
[illegible] [illegible] Corp. [illegible].com	Offers Web hosting and a hosted, integrated suite of business applications.	Small and midsize companies	$20M	Rural Cellular Corp., Unicast, Acta Technology Inc., Flash Electronics, MD Helicopters Inc., SCI Cos.
[illegible] [illegible] [illegible].com	Hosts a variety of application services, including financials, human resources management, business intelligence and supply chain.	Enterprise	$18M	Asiatom.com Inc., GroceryWorks.com Inc., Frank Russell Co., O-Cedar Brands Inc., University of Texas Medical Branch at Galveston, Sovereign Bank, Vivera Technologies Inc., others
[illegible] Inc. [illegible].com	Offers application services for professional services businesses.	Vertical market	$15M	Booz-Allen & Hamilton Inc., British Telecom, Cedars-Sinai Health System, Lockheed Martin Corp., MedChemistry, GAO Corp., Prizemaster-InsureCheques, Raytheon E-Systems, others
[illegible] Inc. [illegible] [illegible].com	Hosts e-business applications.	Small and midsize companies	$14M	AgStar Financial Services, YourPage Inc., Bung-Ho, iQ NetSolutions Inc., Pine Manor College, TelePage, GoldK, MuseumShop.com, LifeLink Marketing Corp., BidLand Inc.
[illegible] Inc. [illegible], Calif. [illegible]	Offers Web-based conferencing services.	Enterprise	$13M	AltaVista Co., Xerox Corp., TD Waterhouse Group Inc., Wisconsin Technical College System, The Charles Schwab Corp., J.P. Morgan Chase & Co., UBS PaineWebber Inc., Arthur Andersen, others
[illegible] and Data [illegible]	A "private label" ASP that provides hosted business applications for resale by telecommunications and network service providers.	Vertical market	$11M	Global Knowledge Consultants, International and Paice Corp., TNT Europa and Beauty Supply Nordic, others

SOURCE: COMPILED BY MARI KEEFE. REVENUE ESTIMATES PROVIDED BY IDC, FRAMINGHAM, MASS., AND GARTNER INC., STAMFORD, CONN.

The Top ASPs

The largest ASPs, ranked by estimated application service revenues in 2000

COMPANY	SERVICES	MARKET	REVENUE	CUSTOMERS
USinternetworking Inc. Annapolis, Md. www.usinternetworking.com	Offers enterprise automation and managed application services. Focuses on e-commerce, ERP, CRM, database and collaboration applications	Enterprise	$100M	AARP, Coventry Health Care Inc., Cornerstone Brands Inc., Franklin Covey Co., Hershey Foods Corp., Kinkos.com Inc., Legg Mason Inc., Liberty Financial Cos., others
The TriZetto Group Inc. Lexington, Mass. www.trizetto.com	An ASP for health care providers, health plans and benefits administrators	Vertical market	$54M	St. Paul Radiology, MedPartners Inc., Talbert Medical Group Inc., Eye Clinic of Wisconsin, Providence Health System
Oracle Corp. Redwood Shores, Calif. www.oracle.com/	Offers a portfolio of hosted health care applications and consulting services to assist health care organizations with the transition to a hosted application.	Vertical market	$54M	Blue Cross/Blue Shield Association, Institute for Urban Family Health, Preferred Health Systems, McKesson HBOC Inc., Anthem Blue Cross Blue Shield, MVP Health Plan, others
Interliant Inc. Purchase, N.Y. www.interliant.com	Managed messaging, managed hosting, Web hosting, security services, professional consulting services. Specialties include CRM, ERP and e-commerce.	Enterprise	$49M	DataCert Inc., Fleetwood Homes Inc., World Book Online
Qwest Cyber.Solutions LLC Denver, Colo. www.qwestcybersolutions.com	Hosts IT infrastructure and applications, including CRM, ERP, sales force automation and e-business. Offers application development and implementation.	Enterprise	$46M	Expanets Inc., Mitsubishi Silicon America, Rochester Institute of Technology, Redback Networks Inc., DaimlerChrysler AG, Systech Retail Systems Inc.
Corio Inc. San Carlos, Calif. www.corio.com	Offers a suite of hosted enterprise application software. Also provides infrastructure for hosting customer applications, including security services.	Enterprise	$43M	Macromedia Inc., Excite@home, MadeToOrder.com, Enpomon Inc., Vertical Networks Inc., Zentropy Partners Inc., Quadrem International Ltd., Hitachi America Ltd., Elemica Holdings Ltd., others
BlueStar Solutions Inc. (formerly eOnline Inc.) Cupertino, Calif. www.bluestarsolutions.com	Hosts enterprise applications from SAP, Ariba, Intershop and Siebel Systems Inc.	Enterprise	$27M	Autodesk Inc., eBay Inc., Solvay SA, Techsmart, Akzo Nobel Surface Chemistry LLC, Astaris LLC, Binstlecone Inc., Fresh America Corp., Frog werk Inc., Linde Lift Truck Corp., others
IBM Global Services Armonk, N.Y. www.ibm.com/services/webhosting	Offers a wide range of hosted services, including business applications, Web site hosting, infrastructure, e-commerce, managed storage, network.	Enterprise	$26M	WorldWide Retail Exchange, e2open, Volkswagen AG, Omnexus.com, eHospitalEurope, Rubber Network
Surebridge Inc. Lexington, Mass. www.surebridge.com	Hosts business applications, including e-commerce, ERP and CRM, human resources, financial, manufacturing, e-mail/collaboration and others.	Enterprise	$25M	DefendNet Solutions Inc., TowerGroup, New York Times Digital, Neartek Inc., Quixote Corp., Xcelecom Inc., Global Metro Networks Inc., AQM Information Solutions Inc., others
Electronic Data Systems Corp. Plano, Texas www.eds.com	Offers a broad range of hosted applications, Web hosting, integration and consulting services.	Enterprise	$25M	Charlotte-Mecklenburg Police Department, Chevron Corp., The Dow Chemical Co., Dow Sales Administration Services, eFodia LLC, Freedrive Inc., World Savings and Loan Association, others
Interpath Communications Inc. Research Triangle Park, N.C. www.interpath.com	Provides application development, business, e-business and Web hosting services, managed network services.	Enterprise	$21M	American Kennel Club, Bayer Corp., Blue Cross/Blue Shield Association, Carolina Power and Light Co., ChainDrugStore.net, Cooper Tools GmbH, Food Lion, Greenville Utilities, others
Breakaway Solutions Inc. Conshohocken, Pa. www.breakawaysolutions.com	Offers e-business application development and hosting.	Enterprise	$20M	Healthcare Services Provider, PacificCare Behavioral Health Inc., The Hartford Financial Services Group Inc., Fuji Photo Film U.S.A. Inc., Honeywell Inc., MIT Technology Review, others
Agilera Inc. Englewood, Colo. www.agilera.com	Offers Web hosting and a hosted, integrated suite of business applications.	Small and midsize companies	$20M	Rural Cellular Corp., Unicast, Acta Technology Inc., Flash Electronics, MD Helicopters Inc., SCI Cos.
PeopleSoft Corp. Pleasanton, Calif. www.peoplesoft.com	Hosts a variety of application services, including financials, human resources management, business intelligence and supply chain	Enterprise	$18M	Adatom.com Inc., GroceryWorks.com Inc., Frank Russell Co., O-Cedar Brands Inc., University of Texas Medical Branch at Galveston, Sovereign Bank, Vroom Technologies Inc., others
Portera Systems Inc. Campbell, Calif. www.portera.com	Offers application services for professional services businesses.	Vertical market	$15M	Booz-Allen & Hamilton Inc., British Telecom, Cedars-Sinai Health Systems, Lockheed Martin Corp., NetChemistry, OAO Corp., PricewaterhouseCoopers, Raytheon E-Systems, others
ManagedOps.com Inc. Bedford, N.H. www.managedops.com	Hosts e-business applications.	Small and midsize companies	$14M	AgStar Financial Services, NextPage Inc., Gung-Ho, iQ NetSolutions Inc., Pine Manor College, TokyoPop, GoldK, MuseumShop.com, LifeLink Monitoring Corp., BizLand Inc.
Placeware Inc., Mountain View, Calif. www.placeware.com	Offers Web-based conferencing services.	Enterprise	$13M	AltaVista Co., Xerox Corp., TD Waterhouse Group Inc., Wisconsin Technical College System, The Charles Schwab Corp., J.P. Morgan Chase & Co., UBS PaineWebber Inc., Arthur Andersen, others
Telecomputing ASA Fort Lauderdale, Fla., and Oslo www.telecomputing.com	A "private label" ASP that provides hosted business applications for resale by telecommunications and network service providers.	Vertical market	$11M	Global Knowledge Consultants, International and Paice Corp., TKT Europe and Beauty Supply Nordic, others

SOURCE: COMPILED BY MARKETEER, REVENUE ESTIMATES PROVIDED BY [illegible]

Fewer ASPs,

Even as the number of ASPs is dwindling, customers are demanding a wider range of services. But can ASPs deliver? By Mathew Schwartz

HUNDREDS OF DOT-COMS have failed in the past year, and many observers assumed that the ASP business model, by virtue of being hyped along with the Internet start-ups, would die with them. It's true that the number of application service providers, many of which emerged two years ago in the midst of the economic boom, has declined sharply since Framingham, Mass.-based IDC reported a peak of 800 last year. But surviving companies say that they're seeing customer demands for increasing numbers of services.

And IDC actually predicts that the ASP market will grow 89% per year during the next five years, with worldwide revenues rising from $986 million last year to $23.9 billion in 2005 (see chart, page 55). But with new players continually entering the market, no one is safe — not even the current leaders. "The top 10 can't rest on their laurels," says IDC analyst Jessica Goepfert. (See "The Top ASPs" chart, page 43.)

Surviving ASPs face the challenge of scaling up to provide more types of rapidly delivered, standardized implementations while still maintaining high uptime and service levels.

Competition should be good news for IT shops that use ASPs. But so far, "I know from colleagues that their ASP experiences have been mixed," says Mitchell Dickerman, CIO at Boston-based advertising agency Hill, Holliday, which has current billings of about $1 billion. "Of those [ASPs] that are surviving, the key differentiator and thing that will keep them in business is not the technology they're offering, but their levels of service."

ASPs will also be sustained by offering more services, says Pradeep Khurana, chairman of Surebridge Inc., an ASP in Lexington, Mass. "It's always been part of our strategy to add services and value to our customers over time, especially now that they're looking at cutting costs and asking us if we can take on more of the services that they used to host in-house," he says.

Surebridge's business model is to be a one-stop shop, especially given what Khurana sees as an increasingly CFO-driven demand from customers for more outsourced applications. "Additional services are really ours to lose," he says.

Skills Search

Talent concerns are also driving the use of ASPs, says Jan Jackman, vice president of strategy for next-generation businesses at IBM, which has an ASP business.

"Overall, there's a skills shortage, and a lot of companies don't have the capability to integrate a lot of these Web-based applications," she says. "[ASPs] are a way for them to get to market faster and to test out these new value-added services, as well as to see if it brings new customers to them. If you're comfortable with the service, you might stay with it."

Hill, Holliday chose an ASP two years ago because it didn't have the in-house expertise that it needed to run its PeopleSoft modules. Surebridge now hosts the advertising agency's time and expense software modules from Pleasanton, Calif.-based PeopleSoft Inc.

"It cost me less to hire Surebridge than it did to hire someone with Oracle experience," says Dickerman, who would have needed to hire three full-time people with Oracle database experience to run the modules. The time system, which has been up for a year, and the expense system, which was launched four months ago, have had "absolutely no downtime," he says.

Dickerman says he'll also use Surebridge next year when he adds business intelligence software from Ottawa-based Cognos Inc. "They have the expertise, and they can add it to the box or add another box for a minimal increase in price," he explains.

The promise of lower costs led Victor Inglese, global IT project manager

at DaimlerChrysler Capital Services in Norwalk, Conn., to select an ASP to run his new SAP installatioo in January of last year.

"We found it would save us much more money to do it externally. We've also limited our exposure on turnover and also on the cost of hiring people," he says, adding that he's pleased with the service levels and uptime.

Inglese uses Denver-based Qwest Cyber.Solutions LLC to host and manage his SAP enterprise resource planning applications. He, too, says he plans to continue to rely upon the ASP for more services as he adds SAP modules in the future.

Using an ASP can also help IT managers get new applications into the hands of their business users more quickly. In her talks with ASP users, Goepfert says, "What I hear time and time again is that they want the cutting-edge application environmeot, and if IT is not their core competency, they don't want to have to spend the time and money to develop that in-house, so they look for an ASP to help them do that."

"Time to market — that's always why we want to go with an ASP," says Chris Farmer, director of global transaction systems at San Rafael, Calif.-based Autodesk Inc., the maker of AutoCAD software and digital design applications used by movie effects houses. It's quicker because ASPs have dealt with the new technology before, he says. And though Farmer doesn't charge users for internal applications, he does pass on ASP costs, and ASPs charge more for customizations. That's a good thing, he says, since simpler applications get to market faster.

"Our internal customers are far more likely to accept a vanilla solution when it comes from an ASP, whereas when it comes from our internal resources, they're far more likely to want to customize the hell out of it," says Farmer.

Nineteen months ago, Autodesk began using three ASPs: Cupertino, Calif.-based BlueStar Solutions Inc. for its SAP installation (notably, a single-instance installation over three locations and in multiple languages); San Francisco-based Salesforce.com Inc. for managing major sales accounts; and Emeryville, Calif.-based Evolve Software Inc. for managing its consultants' time sheets and projects.

So far, so good, says Farmer, and though he sees the ASP market consolidating, he says he doesn't feel the need to use just one ASP for all outsourced applications. "I think we'll play it by ear. We're always extremely interested in finding a point solution from an ASP to a business problem," he says.

Next year, Farmer says, he wants to automate higher-level reporting from other applications back to SAP, with half the work handled internally at Autodesk and the other half done at BlueStar. In the future, he says, he'd like to move the electronic-procurement software from Sunnyvale, Calif.-based Ariba Inc. that his company uses to an ASP such as BlueStar.

DaimlerChrysler's Inglese is optimistic about using ASPs. In the future, he says, he wants to "get my entire environment hosted" — and in some cases managed. "If I could, I would not have anything in-house," he adds.

Making the Right Choice

Of course, choosing the right ASP at the outset is a critical success factor. When evaluating ASPs, Inglese looked for a one-stop shop, stability and a depth of SAP knowledge. One shop hosting many of his applications would give Inglese only "one throat to choke" should the need arise, he says.

He chose well. Of the other vendors he seriously evaluated 19 months ago, "one is not in the business of SAP hosting, and another has gone through a downturn and changed its name 1,000 times," he says.

In case their ASPs fail, Farmer and Dickerman purchased all of their hosted applications' software licenses. As an added safeguard, Dickerman also bought the Oracle boxes his software runs on in the Surebridge data center.

Perhaps the best way to keep ASPs accountable and service high is, like so many things, through proper management. Farmer says that rather than leaving ASPs "to their own devices," he actively manages them.

"We're treating them as an integral part of our systems infrastructure, so we manage them like we would our internal services," he says. "Because the ASP should be transparent to the end user; they shouldn't know."

Quick Link

ONLINE EXCLUSIVES

■ Find research links, more stories, case studies, surveys and other resources at our ASP Knowledge Center.

■ More information, plus tools you can use to scout out your own ASPs, negotiate your own deals, protect yourself and keep up with the latest ASPs have to offer.

More Services

xSP Security Requires Client Participation

If you don't put any effort into developing a security model with your xSP, you're wide open for trouble

BY VINCE TUESDAY

IN MANY YEARS OF working in financial services, I've often been on the receiving end of various kinds of service providers (xSP). I've reviewed xSP companies to make sure they meet my company's security standards, and I've argued to prevent my role from being taken over by a security service provider.

I've always found that xSPs don't communicate well with clients and deliver confused, low-quality service that often lags behind my company's changing business environment.

Recently, my company started offering its services to other financial services companies. This experience has shown me that the problem with xSPs isn't the providers — it's the clients. Clients choose to use xSPs for all the wrong reasons and at all the wrong levels. They keep changing their minds about what services they require and how they want them delivered. As a result, they incur additional costs and hassle that could have been avoided by simply having had clear and consistent requirements at the start of the process.

To be fair, the fault really lies with both the xSP and its clients. Given that most of the methods used to select an xSP are arbitrary and illogical, it isn't surprising that many xSP relationships don't work out.

So, where does security fit into all this? In the past, I've hassled xSPs to ensure that they protect our information as well as, if not better than, we do. In the process, I've uncovered some disturbing situations. For example, one xSP had installed its Internet firewall the wrong way around. It was allowing all inward connections but blocking many ports from going out onto the wider network.

Even when we're the ones providing a service, it's hard to get security right. A customer recently rejected, for cost reasons, a private network line that would have delivered the results of our data processing. It demanded that data be delivered over the Internet via a virtual private network (VPN). The data was of high value, so we wanted to use a system with high security. We were relieved to see that the company's preferred approach was to use triple DES to protect the data in transit. Someone e-mailed us the VPN software to configure the system, which we were happy with until we noticed that the same e-mail contained the password that secured the entire connection.

Sending the key material in plain text over the Internet is bad, but realistically, the chance of an attacker managing to snoop that e-mail and work out what system the password relates to is low. E-mailing passwords isn't a great idea, but there was a worse security risk: The password in the e-mail consisted of a single character. Before everyone writes in to complain, let me be clear: I'm not suggesting that e-mailing a password is right — of course it isn't. But picking a bad password is much worse.

Most encryption technologies employ a user-entered password to generate the key used for the encryption algorithm, so an encryption implementation is only as strong as the password chosen. A one-character password could at best be 8 bits of security, and anyone can break 8-bit encryption with a pencil and paper.

In fact, the situation is even worse than that. ASCII might use 8 bits to represent each character, but English contains enough redundancy that normal text only contains 1.3 bits of randomness per character. It's possible that a well-chosen single character of lowercase text might be five bits of randomness. This is one of the many reasons why a dictionary-word-based password or pass phrase is a bad idea.

Given that anyone could at any time start trying to guess the keys to gain access to the VPN, it really wasn't an appropriate password.

At least we can steer our customers toward the light, in terms of configuring software, but the help they ask for doesn't stop there.

A vital part of any xSP contract is the service-level agreement (SLA). The customer needs to be closely involved in agreeing to the terms of the SLA. That way, they get what they need from the contract and won't want to renegotiate once they have experienced the service.

A customer of ours recently requested a security section in the SLA but didn't have any idea what it wanted covered — "Oh, you know best; you tell us what we want," was its best draft for that section.

So now we face a clear conflict of interest. We want to provide a good service. We want to impress the customer with the level of security we can provide. Yet we want to provide cost-effective services that are easy to manage. Also, we don't understand the company's business model and the threats it faces as well as its own people do. They need to be the ones who decide what level of security makes sense for them.

We need to complete the SLA process as soon as possible so contracts can be signed. Therefore, we can't patiently walk them through the process, gather all of their input and agree on a security system that meets their needs.

Instead, we'll be forced to throw together a bare-minimum security solution and hope they accept it. Without customer input, we have to put other priorities ahead of their needs. We know this isn't perfect and have highlighted the risk, but those negotiating aren't interested in security.

My initial experiences on the other side of the xSP/client divide have given me a new perspective on the whole process. Now when I deal with our xSPs, I focus on communicating our needs and priorities clearly, to make all of our lives easier.

Quick Link

SECURITY MANAGER'S JOURNAL

This Week's Glossary:

Data Encryption Standard (DES): The U.S. Department of Defense encryption method used to be the industry standard. It has since been superceded by the Advanced Encryption Standard (AES), but it's still widely used in the financial services arena, particularly with the introduction in 1998 of the X9 standard, which improves decrypting and encrypting by using three keys. X9 increases the key length from 56 to 168 bits while maintaining backward compatibility with DES.

Links:

www.xspsite.net/: Need the background on various categories of service providers but don't know what a WSP or even an HSP is? This Web site can help.

http://csrc.nist.gov/encryption/aes/: This government Web site gives the low-down on the new AES encryption standard.

www.eff.org/descracker/: The San Francisco-based Electronic Frontier Foundation demonstrates how easy it is to break a single DES.

■ This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com or go to the Security Manager's Journal forum.

THE DAY THE DATABASE WORLD DIDN'T STAND STILL.

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When Does An ASP Pay Off?

Precise ROI formulas are hard to come by, but here are some of the factors to work into your decision. By Michele Netto

WHEN CHIEF FINANCIAL Officer Craig Kinyon decided to outsource much of Reid Hospital and Health Care Services' financial and materials management programs in the fall of 1999, the application service provider market was taking off.

But despite the abundance of exciting, young companies with trendy new offerings, Kinyon made sure he chose a well-established vendor that would ensure that the hospital would reap both its short- and long-term return-on-investment goals.

"Your don't want a 'Dear John' letter from your ASP a year and a half into the relationship," says Kinyon.

A vendor's stability isn't the only criterion in calculating whether it's cost effective to hire an ASP, but in a market so young and unproven, it's even more critical than in most IT deals, Kinyon says.

There are no equations that will absolutely determine whether an ASP can meet your ROI goals. But there are steps you can take to reduce your risk.

The first is to actually look at long-term ROI, a step many user companies skip in favor of evaluating the technology or business function that interests them, says Chris Ambrose, an analyst at Gartner Inc. in Stamford, Conn. However, as the economy tightens, more IT directors are finding themselves in front of CFOs or boards of directors justifying existing programs and previous purchases.

"[Businesses] don't have a good handle on what [application services] are costing them today. Even existing users can only guesstimate what they were spending before implementation [of a new ASP]," says Ambrose.

Kate Murphy, an analyst at Boston-based AMR Research Inc., suggests that companies ask the following key questions to determine a realistic ROI from the start:

1. What staffing and salary costs will your business incur by hiring an ASP? This should take into consideration both the training levels and the number of employees you would have to hire to implement a new application through an ASP, or the number of employees you could avoid hiring by contracting with an ASP to do the work.

2. How do the capital (infrastructure and hardware) and opportunity costs compare? Determine what it would cost your company to buy the server, software and infrastructure, compared to the cost of the ASP.

3. Where are the hidden fees? Chances are they're there whether you're licensing software or paying a subscription fee. Find them upfront, and you won't be surprised down the road.

4. Anticipate ongoing changes and modifications. Find out what's included in the package deal and what's likely to be an add-on. Do you need the more costly bells and whistles from the start, or can you buy vanilla and add on as you grow? Now that Reid Hospital is almost two years into its contract with Siemens Medical Solutions Health Services Corp., which is hosting Reid's Lawson Software-based applications, Kinyon says it costs him less to outsource the applications than it would to maintain the system in-house.

He said running the programs in-house would have required a database administrator and at least three IT professionals who could ensure round-the-clock support. In addition to salary and training costs, finding high-quality IT professionals and relocating them to the hospital's Richmond, Ind., headquarters would have been a time-consuming and costly proposition.

Before signing on with Siemens, Kinyoo and his team visited the company's data center in Malvern, Pa., to see how and where the data is housed.

"When we looked at their high security, actual structure of the building and sophisticated monitoring of file servers, we realized it would be difficult for us to replicate that," Kinyon says.

Even Henry Hardin, co-founder, president and CEO of SCI Cos., an Atlanta-based human resources ASP, hired another ASP to host his Web-based e-commerce, help desk, e-mail and other systems because it was too costly to do it in-house.

"It all comes down to the value: Is it cheaper to buy or rent?" Hardin says.

Anticipating the hard-dollar questions, some vendors are coming to the negotiating table with their own cost-analysis programs.

"The way the economy was a year ago, you could do these kinds of calculations on the back of a napkin. Now, CFOs are looking much more closely at the bottom line," says Tom Brennan, vice president of marketing at Bedford, N.H.-based ASP ManagedOps.com Inc.

The analysis includes everything from a detailed labor chart, with salaries based on geographical region, to security and disaster recovery costs.

"We have found that when people are trying to calculate ROI, their biggest challenge is trying to understand their own IT costs, especially where there are a lot of people wearing many different hats," says Brennan.

Netto is a freelance writer in Brookline, Mass.

Quick Link

ONLINE EXCLUSIVES

- Need a quick primer on ASPs and how they work? www.computerworld.com/cwi/story/0,1199,NAV47_STO63418,00.html
- More information, plus tools you can use to scout out your own ASPs, negotiate your own deals, protect yourself and keep up with the latest that ASPs have to offer: www.computerworld.com/cwi/VID/0,1200,VID,00.html

Looking for Guarantees

While initial purchasing and start-up costs may make going with an ASP seem like a no-brainer, especially for large customer relationship management or enterprise resource planning (ERP) implementations, business leaders and analysts warn that it's critical to tread cautiously and read the fine print.

When Gung-Ho Co., a multimedia materials provider in Incline Village, Nev., signed a major deal with Block Financial Corp., an H&R Block company, it turned to ManagedOps.com Inc. to host its proprietary software. The ASP also hosted for Gung-Ho back-office products from Microsoft Corp. and ERP applications from Fargo, N.D.-based Microsoft Great Plains Business Solutions (formerly Great Plains Software Inc.).

During the first week of the project alone, Gung-Ho had to fulfill a contract to manufacture and distribute 1.2 million packages of Kiplinger Tax-cut software to as many as 15,000 different locations. Gung-Ho President John Wade says he was under the gun to implement a solution through an ASP, but he had to take the time to research ManagedOps' warranty policy and make sure Gung-Ho would be made whole should the service provider go out of business and cause the company to lose a deal as large as H&R Block.

"You have to make sure they can meet your time line, if they get pushed back, so do you, and that means [financial] penalties in most cases," Wade says.

Businesses often forget to consider the "what if" scenarios when factoring ROI, and that's often where money is lost over the long haul, says Paul A. Strassmann, president of the Information Economics Press and a *Computerworld* columnist.

As with buying a car or renting a house, businesses must find out what an ASP's insurance coverage is and whether they will face penalties for nonperformance and missed deadlines, Strassmann says.

"You always want to know your exit plan," Wade says. "It's sort of like a marriage and a premarital agreement. What happens if there's a problem?"

– Michele Netto

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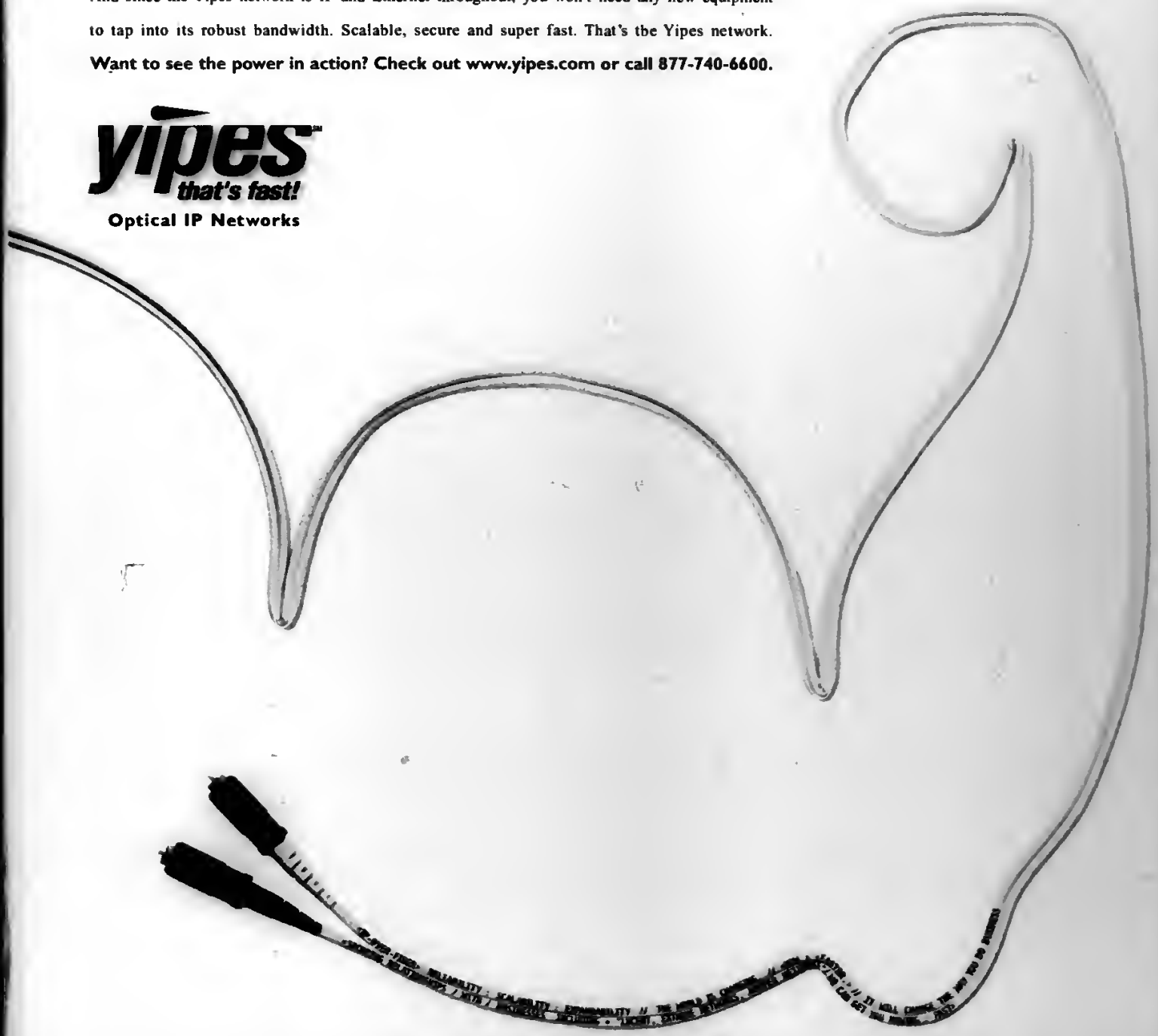

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Critical Teamwork

STEPHEN SHEFFIELD

A successful relationship with an ASP depends as much on your own project team as on the service provider you contract with. By Mary Brandel

IT WAS ALREADY a tense situation. C-bridge Internet Solutions Inc., a technology and consulting services firm in Boston, was conducting a live migration of its Microsoft Exchange e-mail operations to its application service provider, USinternetworking Inc. (USi) in Annapolis, Md.

But along the way, the migration hit a glitch, and all external e-mail stopped flowing. Jason Aber, the user services manager at C-bridge, began troubleshooting and notified Tod McFarland, the company's director of architecture and engineering.

McFarland was unable to locate the problem, so he called USi and spoke with the engineers there.

The discussions escalated. Soon McFarland was brainstorming with USi's senior architecture engineers. Through trial and error, they tracked the problem to the routers and were able to restore e-mail functionality.

"It was a pretty major problem that could have resulted in an e-mail outage," says Ralph Rodriguez, vice president and CIO at C-bridge. "They had it done in half an hour."

What accounts for such a quick fix of a complex technology problem? Rodriguez is quick to point to USi's "willingness to be our IT department, not just our ASP."

It definitely takes both sides to make an ASP relationship succeed. That's why Rodriguez also credits McFarland with having just the right mix of skills to be an excellent frontman for managing the ASP.

First, McFarland is intimately familiar with the Exchange application. Second, be was able to clearly articulate what was going on with the network and the application on C-bridge's end. Third, McFarland understood how USi functioned as an ASP and trusted the relationship between USi and his company. This last factor took time to develop.

"Originally, [McFarland] did not want to open up a security hole, and IT guys always want to manage their own stuff," Rodriguez says. "It was through understanding where we are going as a business and working with USi that he changed his mind."

When a firm signs up with an ASP to host an application or a portion of its internal operations, it's not enough to choose the right service provider. The customer also has to assemble the right team to work with the ASP.

Exactly who should be on that team varies, depending on the makeup of the company and IT department, as well as the exact nature of the ASP relationship. For example, the ASP might be hosting the company's IT operations or one or more applications. Furthermore, the applications might be mission-critical or nonstrategic.

In smaller companies, a help desk representative or end user might be the main ASP liaison. Bigger companies might deploy a larger team including an IT project manager, an end-user representative and the CIO.

In any event, it's safe to say that at many firms, the team is made up of a project manager from the business or technology side, a director of operations, an end-user manager, a help desk representative and the CIO.

But more important than title are the attributes of the people involved and a full understanding of the responsibilities of the job.

"The ideal customer is one who understands the ASP business, is technically savvy and has excellent communication skills, so we can react appropriately," says Ajeeth Jaganneth, practice director at USi.

Project management skills are also important. "A good project manager will get us involved in the early stages to determine risks, while other folks would give us a call the day before [they wanted something changed] and say, 'We need to get this done tomorrow,' " Jaganneth said.

At C-bridge, Rodriguez himself headed up the team that chose USi early last year. His intent was to offload a nonstrategic function from his 20-member IT staff.

But Rodriguez says he felt it was important to have McFarland, as director of engineering, as well as Aber, as manager of user services, also involved in the decision.

"They needed to understand what USi was promising so they could ask their specific questions in addition to my 10,000-foot ones," says Rodriguez. For example, how would USi be reached — directly or through a virtual private network tunnel? How was its security architecture? How would outages be handled?

"The director of engineering has to browbeat the provider to find out the score," Rodriguez says.

The ability to effectively browbeat may require a customer to have intimate knowledge of the hosted application, as Rodriguez and his team did with Exchange. But if such knowledge doesn't exist, "it's critical to have a great relationship with the ASP, from both the business and technical sides," he warns.

Core for Best Practices

In either case, it's a good idea to pull together a team of people representing both technical and business concerns. At Ingersoll-Rand Co., a $9 billion diversified industrial manufacturer based in Woodcliff Lake, N.J., a four-person team heads up ASP relationships.

ASPs are a core piece of Ingersoll-Rand's goals of following consistent best practices across the company, reusing IT assets and conducting rapid technology implementations.

"For years, we've been doing one-off implementations to solve our business problems," explains Robert Orshaw, vice president of technology at the company.

Now, he says, the company has formed a global technology organization set up with best-practices leaders who consult with the individual business units to create Internet-based systems to solve business problems. Rather than manage these systems internally, the company will use ASPs to host the applications.

For example, when Club Car Inc. moved to a new sales model, it needed call center and sales force automation systems to support it. Normally, the Augusta, Ga.-based division of Ingersoll-Rand would have used a business consultant to implement the needed systems. Instead, Orshaw's group worked with the unit to select some core modules from San Mateo, Calif.-based Siebel Systems Inc., to be hosted by Corio Inc., an ASP based in San Carlos, Calif.

"It will be a six-month project rather than a three-year one," Orshaw says. Plus, the company can reuse the applications in another business unit.

The team at Ingersoll-Rand that interfaces with Corio includes a process owner from the business unit, who ensures that business needs are met; a local IT project manager, who ensures that the system is viable and services are being delivered properly; and a project manager from the centralized technology organization, who ensures that reuse and best-practices principles are adhered to.

Once the project is implemented, the local IT organization provides ongoing support and is responsible for calling Corio if a problem can't be solved. The local IT manager makes sure the service-level agreements (SLA) are adhered to.

"It would be nice if [that person] had previous experience managing an outsourcing provider, so that they're familiar with SLAs and change procedures so you don't have huge scope creep," Orshaw says. "I would put project management skills as No. 1, managing providers as No. 2 and technical ability as No. 3," in terms of important skills, he adds.

ASP SLAs

Understanding SLAs is an important ingredient for any company using an ASP. It shouldn't just be left to the legal department. The director or CIO should also review the contract to be sure it aligns with how the department functions as a business.

"USi has done a good job with the cookie-cutter SLA, but I wanted my own version of customer intimacy," Rodriguez says. "For example, some people like automatically renewing contracts, while others don't."

"The person who manages [our ASP relationship] has to understand that we're a service organization and manage accordingly," agrees Kirk Brauch, director of technology at Myfujifilm.com, a subsidiary of Hanover Park, Ill.-based Fuji Photo Film USA. Myfujifilm is using Conshohocken, Pa.-based Breakaway Solutions Inc. to monitor and manage the site, which provides Web-based file proofing and e-mail notification.

"When you get down to the nitty-gritty of 'Did we respond in five minutes?' and the ramifications of that, it takes someone who understands contract issues," Brauch says.

But in the end, the relationship is everything, and that means you need to have people on the team who are capable of being strong partners.

"It comes back to trust," Brauch says. "Guys like me don't like giving up control. You've got to do strenuous due diligence to be sure these people understand your business and that they've got the technical and financial wherewithal to handle it. You're only as strong as your weakest link."

Additionally, the application is usually hosted in a secure facility — so secure that not even a CIO can walk into it. "It's almost like *Mission: Impossible*," Brauch says. "You have to be totally confident that the ASP knows what they're doing."

So, more than having any technical expertise, the people managing the ASP need to be good communicators. "It's all about negotiations — 'Is it our problem or their problem?' " Rodriguez says. "Your classic engineer would be a terrible person to have on the phone."

Bottom line: The ASP relationship is a project, Brauch says. "It never stops," he says. "Once it's launched, it continually evolves."

Brandel is a freelance writer in Newton, Mass.

The A Team

Key IT personnel to help maintain your ASP relationship

Assembling a team to manage your ASP is second in importance only to choosing the ASP itself. Here are some of the key players and responsibilities to consider:

THE CIO: ASP selection, SLA and contract development

PROJECT MANAGER, technology side: ASP selection, system viability, architecture compatibility, SLA adherence, troubleshooting, problem escalation, cost containment

PROJECT MANAGER, business side: ASP selection, business viability, SLA adherence, troubleshooting, problem escalation

DIRECTOR OF OPERATIONS: ASP selection, system viability, architecture compatibility, SLA adherence, troubleshooting, problem escalation, cost containment

END-USER REPRESENTATIVE: Process development for problem notification, ensuring that user needs are met

HELP DESK REPRESENTATIVE: First-level support, problem escalation, troubleshooting

Quick Link

ONLINE EXCLUSIVES

- Get a comprehensive list of vendors, events, glossaries and buyer's guides.
- What should you ask yourself before hiring an ASP? Find a quick primer on the whole ASP thing.

DICK HUDSON

The Time's Not Right for ASPs

SHOULD YOUR IT ORGANIZATION hook up with an application service provider? It's an oft-asked question today. A recent article in a leading business magazine reported on "the death of the modern corporation." The story revolved around what was the central theme of the recent World Economic Forum (WEF) in Davos, Switzerland. There, the world's leading economic and business scholars declared that the Internet would force today's corporate enterprises to re-evaluate what businesses they're in and jettison the rest of their entities to aligned partners and outsourced Web providers. Hence, ASPs are at the heart of the changing business climate.

So, as if the CIO didn't already have enough to worry about, he may he looking to ASPs to outsource nonrevenue-producing IT assets within his organization.

In most of today's modern corporations, IT doesn't directly produce revenue. Despite all the business initiatives of the past decade to align IT with the customer and business units, IT can still he wholly outsourced. And if that outsourcing is successful, the old IT department woo't be missed.

John Chambers, Cisco's CEO, curs with the basic premise of the WEF's leaders in that 70% of Cisco's products go directly from outsourced partners to customers.

So to today's CIO, I pose this question: To ASP or not to ASP? Given the history of ASP life cycles, the answer is a resounding "no" — at least for oow. However, as the old saw goes, the king can go to the sea and command the tide not to come in, but he's going to get his feet wet. ASPs are the reality of today's CIO's future. So the question iso't "Should I," but "When and how?"

There are hundreds, if oot thousands, of published opinions about ASPs and what to do about them. Yet Web-based outsourcing is the future, and it's here to stay. The early years of any industry is marred by quick-buck artists, poorly funded and orchestrated companies, consolidation and death.

Today's ASP market is squarely mired in the poorly-funded-and-orchestrated stage of development. The vast majority are privately held, and accurate financial reporting is very rare. In dealing with these companies, telltale signs of severe resource constraints, such as continuing failure to meet basic service thresholds, are evideot to any seasoned CIO. This is most often indicative of insufficient capital investment for infrastructure development.

Wheo is an ASP in trouble? When it suffers from constant turnover of key personnel and a lack of prompt, satisfactory user support. And refusal to provide a list of happy customers is always a red flag for any CIO.

So tread carefully and make due diligeoce a hallmark of your selectioo process.

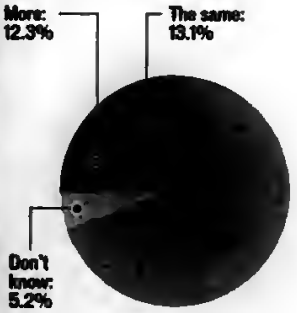
In the end, the ASP industry will survive and prosper. To those of you who are early adopters, having an updated résumé is always a good Plan B. If you make it work, fame and fortune will follow, but remember to pull the arrows out of your back.

ASPs are going to become the 800-pound gorilla, so get ready. The IT corporate functioo is going to change dramatically over the next I0 years, and CIOs will hate it, while CEOs will love it.

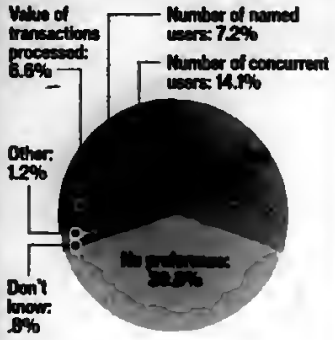
DICK HUDSON is a consultant and was CIO at Global Marine Inc., a Houston-based offshore drilling company, for 17 years. Contact him at Dick.Hudson@glm.com.

How much would you pay for ASP services?

If the ASP provided the same level of service as you could provide in-house, would you pay . . .



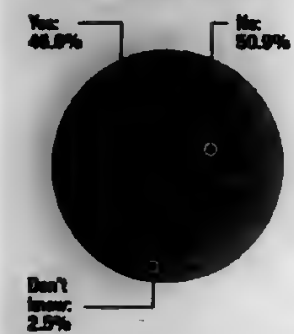
How do you prefer to pay for ASP services?



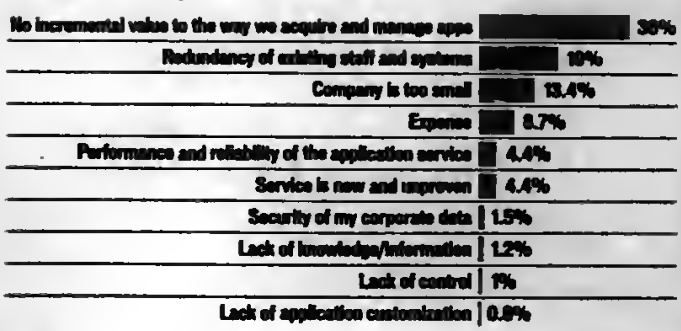
SOURCE: IDC (267 RESPONDENTS)

WHY AREN'T YOU HIRING ASPs?

Would you consider an ASP if your concerns were addressed?



Top I0 reasons given by CXOs for not considering ASPs:


No incremental value to the way we acquire and manage apps 38%
Redundancy of existing staff and systems 19%
Company is too small 13.4%
Expense 8.7%
Performance and reliability of the application service 4.4%
Service is new and unproven 4.4%
Security of my corporate data 1.5%
Lack of knowledge/information 1.2%
Lack of control 1%
Lack of application customization 0.8%

SOURCE: IDC FRAMINGHAM MASS. 183 RESPONDENTS, AUGUST 2000

Making ASPs More Credible

The ASP Industry Consortium (ASPIC) and the Information Technology Association of America (ITAA) are both working on projects to make ASPs easier to work with and more reliable.

Security: The ITAA and ASPIC are both working on best-practice recommendations to improve security.

Billing: ASPIC is working to standardize billing procedures between ASPs and between ASPs and end users.

Certification: Both organizations are working to support relevant certifications in ASP environments.

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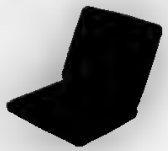

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ASP Spotlight

Many ASPs have flamed out in the past couple of years, but the survivors are building their networks and portfolios of services. The result: Potential customers are beginning to like what they see.

XSP VS TRADITIONAL SERVICES

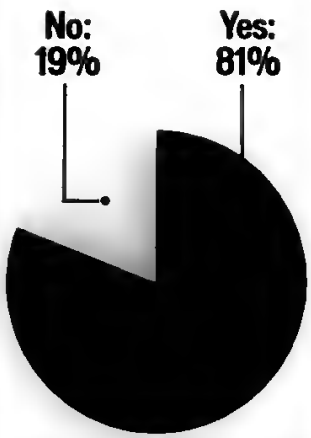
Key differences between traditional service models and the ASP model:

Traditional Service	ASP Service
Not necessarily delivered via a network	Delivered via a network
One-to-one or one-to-many business model	One-to-many business model
Either externally or internally managed	Always externally managed
Custom or standard pricing	Pricing based on standardized service fees

SOURCE IDC, FRAMINGHAM, MASS.

HIGH LEVELS OF SATISFACTION

Are you satisfied with your IT service providers?



SOURCE: BERNETT RESEARCH SERVICES INC., BOSTON

What Factors Might Keep You From Hiring an ASP?

- Hype backlash
- Concern over reducing time to market
- Lack of education on ASPs
- Lack of bandwidth
- Low number of successful ASPs
- More limited freedom of choice
- ASPs' low market penetration

SOURCE: IDC, FRAMINGHAM, MASS.

ASP CUSTOMERS

Companies already purchasing or renting applications through an ASP: **8%**

Companies likely to purchase or rent applications from an ASP in the future: **23%**

*SOURCE: ASP INDUSTRY CONSORTIUM/PMP RESEARCH, LONDON SURVEY OF 1,993 END-USER COMPANIES WORLDWIDE

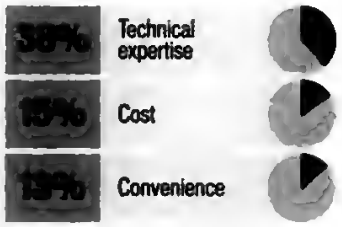
Main Reasons To Consider an ASP

- Affordable access to technology
- Ability to focus on core business competency
- Reduced need to recruit and retain new staff
- Improved cost and performance
- Reduced implementation time

SOURCE: IDC, FRAMINGHAM, MASS.

WHAT DO YOU LOOK FOR?

The leading criteria for selecting an ASP:



SOURCE: BERNETT RESEARCH SERVICES INC., BOSTON

ASP EXPENDITURES

Where ASPs spend your money:

Operations staff	22.2%
Sales and marketing	14.4%
Applications being delivered	13%
Servers	10.4%
Data center	10.1%
Help desk support	9%
Network equipment	4.3%
Storage capacity	4.2%
Network access/connection	4.1%
Other network costs	4.4%
Other software	3.9%

SOURCE: IDC, FRAMINGHAM, MASS.

GLOSSARY

x Marks The SP(ot)

Heaven knows the computer industry has more than enough acronyms and TLAs (three-letter abbreviations) to confuse just about anybody. But the rise of third-party service providers has generated a whole bowlful of alphabet soup. Here are the ones we've been able to track down.

– Russell Kay and Mathew Schwartz

xSP: (Any type of) service provider Whatever you want, as long as it represents a service delivery model that's delivered over a network, externally managed, and one-to-many- and fee-for-service-based

AAA: ASP application aggregator A portal that brings together not only a variety of content from multiple sources, but also applications and business analytics from multiple providers.

AIP: Application infrastructure provider A hosting provider that offers a full set of infrastructure services for hosting online applications.

ASP: Application service provider Provides access to applications for automating functions or entire business processes. Must deliver applications via a network and monitor them remotely. ASPs have a one-to-many business model: They roll out one application, as standardized as possible, for as many users as possible, and make money through economies of scale and by charging users an ongoing service fee.

BSP: Business service provider An ASP that focuses on providing and hosting applications related exclusively to business functions.

CSP: Content service provider Gives customers access to specific content such as news, competitive analyses and streaming media.

DESP: Development environment service provider An ASP for development environments, providing tools such as development software and code libraries.

FSP: Full service provider An ASP that offers a wide range of Web-based IT services, including planning and creating a Web presence, providing needed software, and hosting and maintaining a Web site.

ASP Investment Outlook for the U.S.

IDC estimates that spending on ASP services in the U.S. will grow from $770.5 million in 2000 to $15 billion in 2005, representing an 81% compound annual growth rate.

The key drivers affecting ASP spending in the U.S. include the following:

- **Economic conditions.** The U.S. may be poised for a recession, or at least a slowing of economic growth. During such times, U.S. firms are driven to become more efficient and focus on their core businesses. As a result, many may turn to ASPs.
- **ASP ecosystems that have developed.** Since the ASP market is most mature in the U.S., companies here have been busy for quite some time developing the partnerships needed to deliver comprehensive, compelling service.
- **ASP adoption by large companies.** Most U.S. ASPs anticipated that at some point, larger firms would find value in the ASP model. Last year, many large companies became ASP customers at a faster rate than anticipated.

The challenges affecting ASP spending in the U.S. include the following:

- **Financing.** Unprofitable companies can't expect to receive unlimited funding. ASPs need to build efficiencies and economies of scale if they wish to stay in business.
- **Differentiation.** In a more mature market, ASPs will need to develop services to distinguish their offerings; application functionality alone won't be sufficient.
- **Awareness.** Data suggests that U.S. end users may be more educated about ASPs but still aren't convinced that they should use one.

SOURCES: IDC, AFTAS, 2001 ("WORLDWIDE ASP FORECAST AND ANALYSIS, 2001-2005," BY AMY KONARY, MARIBETH BARNEY BOWLER, JESSICA GOEPFERT, JEANNE HOPE AND STEPHEN VIGILANTE)

MARKET SHARE OWNED BY THE TOP 10 PROVIDERS

The percentage of the market that's owned by the top 10 providers is huge now but will drop as other providers gain a foothold in a marketplace that's currently overcrowded, analysts predict.

SOURCE: GARTNER INC., STAMFORD, CONN.

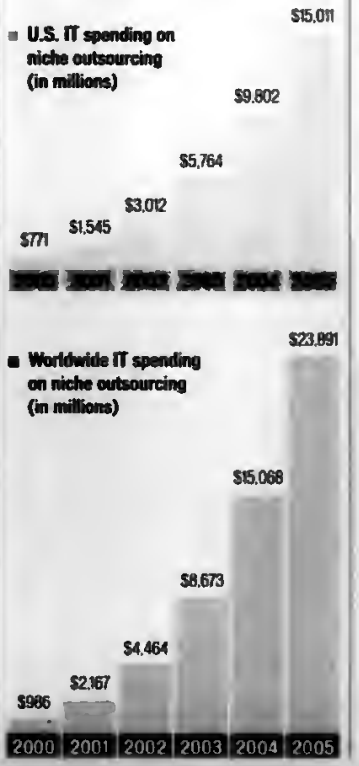
ASP ATTRITION

Percentage of ASPs that will drop out of the business, go out of business altogether or be acquired by year's end:

Gartner Group estimate	60%
Aberdeen Group estimate	80%

Vigorous Survivors

Despite the fallout, IDC expects surviving xSPs to reap substantial benefits:



SOURCE: IDC, FRAMINGHAM, MASS.

> **It's the same as the early dynamics in any other industry. But for ASPs, there were unrealistic expectations, and now we're facing a hype hangover.**
>
> LEW MOLLERBACH, MANAGING DIRECTOR, ABERDEEN GROUP INC.

> **What we've found is that most ASPs that did go out of business did so because they couldn't get funding because they didn't have any customers, so the [impact on customers] has been relatively low.**
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> PAULA HUNTER, CHAIRWOMAN, ASP INDUSTRY CONSORTIUM

HSP: Hosted service provider Provides data center facilities for general-purpose server hosting and co-location.

ISP: Internet service provider Provides basic connectivity to the Internet and can also host an organization's Web site.

MSP: Managed service provider (or management services provider) Manages IT infrastructure and services.

MSSP (also MSecSP): Managed security service provider Installs and maintains an integrated portfolio of security software and hardware that's preselected and integrated for each customer.

NSP: Network service provider Provides access to network and communications services.

PEP: Process execution provider An ASP offering limited functionality, such as customer relationship management or logistics.

PSP: Process support provider Handles support for, but not execution of, business processes.

SSP: Security service provider See MSSP

SSP: Storage service provider Offers very high-capacity data storage.

VSP: Vertical ASP An ASP that services a specific vertical industry.

WASP: Wireless ASP Extends a network to mobile workers via wireless transmission.

SOURCES: IDC, PC MAGAZINE, WHATIS.COM, ASP.COM

Quick Link

ONLINE EXCLUSIVES

- What should you ask yourself before hiring an ASP? Need a quick primer on the whole ASP thing? www.computerworld.com/cwi/122455
- More information, and tools you can use to scout out your own ASPs, negotiate your own deals, protect yourself and keep up with the latest ASPs have to offer: www.computerworld.com/cwi/122459
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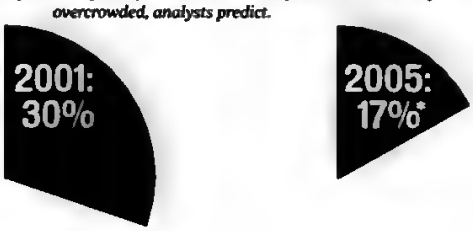

* PROJECTED

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SOURCES: [illegible]

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Account Executive
Manage Contract activities with reference to solutions delivery & marketing of company products and services such on SCADA systems, Odyssey document and imaging system, SQL Server, Internet Information Server and Active Server pages. Negotiate contracts for projects to be executed on the onsite/ offshore model in India. Propose and present solutions based on company products such as SCADA systems, Odyssey document and imaging technology and SQL Server, Internet Information Server and Active Server Solutions technologies, negotiate contract terms, prepare proposals according to development & installation rates, draw up contracts, approve amendments & ensure compliance according to agreeable terms, coordinate with development teams to ensure delivery schedules & installation according to contract terms, and according to SCADA & Odyssey parameters, resolve marketing & installation problems involved in use of SCADA systems, Odyssey imaging technology, travel approximately 40% of time to make presentations & negotiate contracts. Must have an MBA in Information Systems/Marketing, 2 yrs. of exp. in above position or 2 yrs. exp. as an Account Executive or related position w/prior exp. in Contract life cycle of packaged solutions such as Marshal or similar ERP solution. Prior exp in sales, negotiation, & formalization of contracts. Must be able to use Visual Basic & SQL Server. 40% travel time.

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Software Engineer design/ develop systems for various business applications, determine feasibility of design, interface software/hardware, evaluate requirements of overall systems. Tools: Visual Basics, MS Access, JAVA, ASP, Oracle, & IIS. Req. MBA or Comp. Sci. and 1 yr exp. Send resume to: Mithra Amaran, JMA-IT, 6405 Metcalf Ave. Suite 514, Overland Park, KS 66202

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This position plans and administers computerized databases, including base definition, structure, documentation, long range requirements, and operational guidelines. Ensures accuracy and completeness of data in master files and various support tools. Establishes and maintains security and integrity controls. Recommends policies and procedures relating to database management. Assists engineers, developers, scientists and other staff in the use of information management and database technology by providing both technical support and database administrative support and services. Stays abreast of and promotes the use of information management technologies which will improve the quality and effectiveness of data management and development efforts.

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SOFTWARE ENGINEER or design, develop, test, implement, maintain and support application software in a Windows environment using Java, C, C++, Visual Basic, VB Script, HTML, SQL, MTS and ASP while adhering to the software development standards and specifications of COM, CORBA and UML. Require M.S. degree in Computer Science, or a closely related field; with 2 years of experience in the job offered or as a Programmer/Analyst. Competitive salary offered. Apply by resume to: Ken Bowman, Application Technology Manager, Republic Mortgage Insurance, 180 Oak Plaza Blvd., Winston-Salem, NC 27105, Attn: Job PK.

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FRANK HAYES/FRANKLY SPEAKING

A Light on ASPs

HOW MANY IT PEOPLE DOES IT TAKE to change a light bulb? The correct answer: IT people shouldn't change light bulbs. Janitors should change light bulbs. Why? Not because IT people can't do it, but because light-bulb changing is a function that can be identified, partitioned and executed at a lower cost by a janitor than by IT people. Changing light bulbs ourselves just doesn't make sense.

Which brings us to ASPs. Sure, they're more expensive than janitors. But they're still just changing light bulbs. They're taking over some IT function that we could do ourselves and doing it better or less expensively than we would.

Is outsourcing an IT function to an ASP a good idea? Maybe. It depends on the function, the ASP and the IT shop. The potential advantages are obvious: lower costs and staffing requirements.

The potential problems are real, too. Maybe they're scaring you or your boss or your IT shop away from seriously considering ASPs. Maybe they just make a convenient excuse to avoid a change.

Funny thing, though: Most every significant issue with an ASP is right there with the light bulbs, too.

If a light bulb burns out, IT people will be without light until it's replaced. Light is a critical (if mundane) IT function — without it, you won't get any work done. That could make a burned-out light bulb a crisis issue — *unless* there's enough extra light so the working light bulbs that remain are enough to get by on. **Outsourcing requires backup – and possibly oversupply.**

It's unlikely all the lights will burn out at once. But if they do, you're better off with an IT person changing a light bulb than waiting for the janitor to make his rounds. **Outsourcing requires contingency planning for the unlikely event that the ASP fails entirely.**

Unlike the IT people working under those lights, the janitor won't notice the reduced lighting immediately. It will take time for the janitor to notice and then change the light bulb. **Outsourcing means delays.**

If the janitor doesn't have the right size light bulb in the janitor's closet, he'll have to order it, which means more delays. **Outsourcing risks daisy-chain delays.**

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

If the janitor finds a spec-compliant substitute light bulb and uses it, it may not meet the lighting needs of the people under it as well as the old bulbs did. **Outsourcing risks inappropriate substitution.**

If users discover a potentially better light bulb — whether it complies with the specs or not — it will take time and may require negotiation with the janitor to get him to try the new light bulbs. **Outsourcing increases the cost and time required for improvement or innovation.**

If the janitor gets sick, light bulbs may take longer to get changed. **Outsourcing increases the risk of process failure due to problems with the outsourcer.**

If the janitors go on strike or stage a work slowdown, you may be without new light bulbs for an unknown period. If the janitor can't buy new light bulbs because the light-bulb company won't accept a purchase order, ditto. **Outsourcing effectiveness may be subject to work stoppages and other business conflicts.**

If problems develop with the light-bulb-changing process, the fact that there's no prescribed direct communication between users and the janitor may prevent those problems from being solved early, before they become light-threatening. **Outsourcing may reduce the chances of early identification and solution of problems on the ASP's side.**

If the janitor turns out to be a lazy bum, you won't get good light-bulb service until you get rid of him — which may be hard to do. **Outsourcing may lock you into a supplier who can't or won't get the job done right.**

Serious issues? Sure. And you should take a cold, hard look at each potential problem — and bow you'll handle it — before handing off any IT function to an ASP.

But none of these issues is fatal.

If they were, we'd all be changing our own light bulbs. ◗

SHARK TANK

THIS MINICOMPUTER model's name translates into Chinese as "the curse," says a software pilot fish who works for the vendor. So when one Hong Kong customer reports intermittent crashes that seem to be timed to the phases of the moon, "everybody here fell over laughing at the Oriental superstitions," fish says. Until it turns out the Chinese techs are right. The customer's building is right by the bay, and at the high tides that come with a full moon, water in the basement is shorting out the building's wiring.

PILOT FISH doesn't take long to figure out why this remote office can't connect to the corporate wide-area network: A lightning storm has taken out the router. "What could have caused this?" asks the site manager? "I tied knots in all the power cords to prevent any surge from getting through."

INTERMITTENT NETWORK problems are driving this pilot fish nuts. After months of troubleshooting and $10,000 in replacement hardware, this remote site still has trouble every time it rains. "One day, finally, everything starts going haywire while I'm there," he says. He traces a power problem back to the circuit breaker box – from which rainwater is pouring. "The roof leaked right into the electrical panels," fish says. Do you know about this? fish asks local staff. "Oh, yeah," they say. "We figured when it fried, we'd get it fixed."

USER'S KEYBOARD isn't working, and when pilot fish checks it out, it seems heavy. "When I tilted it sideways, enough water and food particles poured out, you could have made soup," fish says. We must have had a roof leak after that last big thunderstorm, user suggests. "On the seventh floor of a 12-story building?" fish asks. Coworkers finally spill the beans, he says: "A liter bottle of drinking water was the cause."

OVERHEATING PRIORITIES Air conditioning goes down in a school district office during a heat wave. But a quick-thinking IT pilot fish aims a fan at the server to keep it cool, so secretaries can continue to enter data. That works fine – until a principal walks by. He touches the fan's motor housing, decides it's getting too hot and switches it off. Sighs the pilot fish, "The computer immediately crashes."

Warm up my mailbox. **sharky@computerworld.com.** You get a stylish Shark shirt if your true tale of IT life sees print – or if it turns up in the daily feed at *computerworld.com/sharky.*

The 5th Wave

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THE VISITORS FROM A PARALLEL UNIVERSE HAD KNOWLEDGE. BUT NOT LIKE THIS.

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